5.8 National Snow and Ice Data Center (NSIDC)

This section describes the activities at the ECS portion of NSIDC during the operation of ECS Release B.

5.8.1 Key Interfaces: NSIDC DAAC-ECS

The NSIDC ECS DAAC interfaces with multiple entities external to the DAAC. Figure 5.8.1-1 schematically illustrates the interfaces between the ECS at the NSIDC DAAC and its external entities.

The following further describes the external entities, including those identified to support interface testing:

- NSIDC V0 DAAC - This interface provides access to data or other information that comes into the DAAC via the V0 IMS system but are archived into ECS, or into both ECS and the NSIDC V0 archive. The migration of V0 data sets into ECS will occur via this interface.
- SMC - This interface provides the capability for the NSIDC DAAC to receive configuration data, scheduling directives, policy and procedure information and user registration information. The NSIDC DAAC sends its summary fault and performance data, accounting data, resource utilization data, and status reports to SMC.
- Users - This interface is the mechanism for user community access to ECS data, products and services.
- ASTER GDS - This interface provides NSIDC ECS user or ASTER GDS user to view the data holding and order production data from the other system.
- GSFC DAAC - This interface allows GSFC DAAC to receive data request and coordination from NSIDC and transfer MODIS Level 2 data to NSIDC DAAC.
- MODIS SCF - This interface supports the MODIS science software integration and testing. MODIS algorithms, metadata, science software, test data are example of things that will cross this interface and QA, test results are sent back to MODIS SCF.

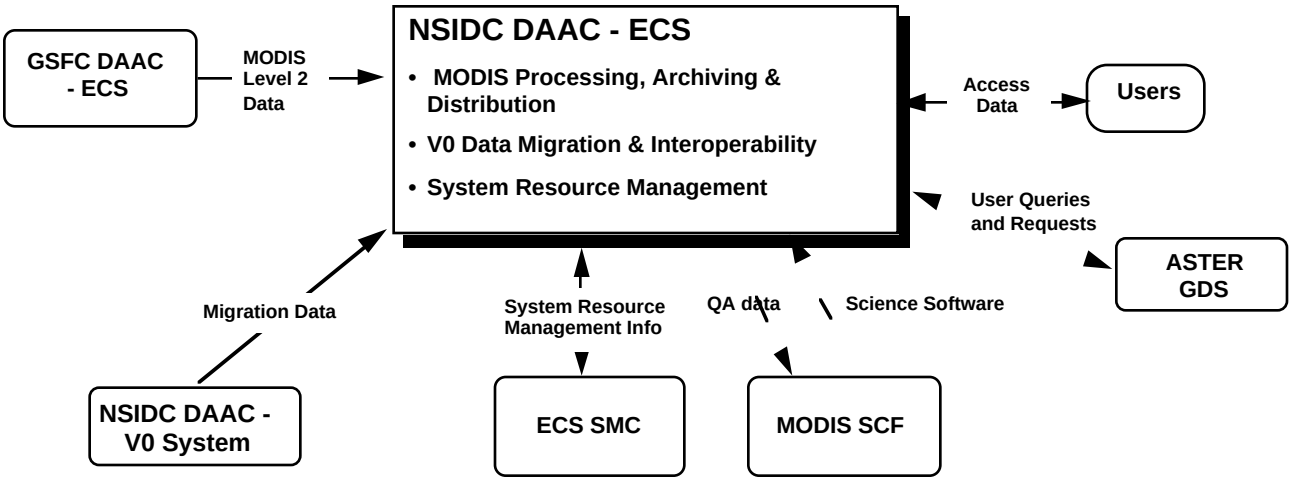

Figure 5.8.1-1. Release B Key Interfaces: NSIDC DAAC-ECS

5.8.2 NSIDC ECS Related Mission and Operations Activities

This section describes the mission and operation activities specific to the ECS portion of the NSIDC DAAC during Release B. The NSIDC Products from the Technical Baseline and the NSIDC User Pull Baseline during Release B are also included in this section.

5.8.2.1 NSIDC Release B

The following is a list of the Release B mission and operations activities for the NSIDC DAAC.

- Full functionality to support operations for AM-1 science operations: Ingest MODIS data from GSFC, produce MODIS higher level land products
- Support MODIS algorithm I&T for EOS AM-1
- Support access/distribution of products
- Support access to V0 data products

5.8.2.2 NSIDC Products from Technical Baseline

Table 5.8.2.2-1 provides the products in the ECS Technical Baseline (Based on the AHWGP) which are either produced or archived at the DAAC in Release B.

Table 5.8.2.2-1. NSIDC Release B Product Baseline

Instrument	Platform	Production DAAC	Archival DAAC	Product Level
MODIS	AM	NSIDC	NSIDC	3
MODIS	AM	GSFC	NSIDC	2

5.8.2.3 MODIS

See section 5.4.2.7 for detail information.

5.8.2.4 NSIDC User Pull Baseline

Table 5.8.2.4-1 lists the Data Volumes and Usage Estimates for the NSIDC DAAC. See section 5.1.2 for a description of how the data was developed and definition of each of the parameters.

Table 5.8.2.4-1. NSIDC Data Volumes and Usage Estimates

	1-Apr-97		1-Apr-98		1-Apr-99		1-July-99		1-Jan-00	
	Low	High	Low	High	Low	High	Low	High	Low	High
Archive Vol (TB)	0.000	0.000	0.096	0.096	4.552	4.552	6.033	6.033	8.975	8.975
Distrib. Vol/yr (TB)	0.000	0.000	0.192	0.192	8.912	8.912	11.853	11.853	11.765	11.765
GB/day produced/migrated	0.00	0.00	0.26	0.26	16.21	16.21	16.06	16.06	16.06	16.06
#Users/yr	0	0	550	900	600	1100	600	1200	600	1400
#DAAC Accesses/yr	0	0	5500	18000	6000	22000	6000	24000	6000	28000

5.8.3 Day in the Life of ECS at the NSIDC DAAC

Activities described in this section occurred on Wednesday, 01-Sep-99, during Epoch "k." This section provides a retrospective look at the operational activities of the day. That is, it is the "as executed" data for that day. Activities (and their key metrics) performed with ECS resources at the DAAC are shown in Table 5.8.3-1. Note that these are daily averages for Epoch k. Data for this day may vary from the average. Figure 5.8.3-1 shows a composite summary of those activities.

Figures 5.8.3-2 through 5.8.3-8 show Release B and Release C activities leading up to and during this period that have the potential to affect operations. Activities related to Releases C & D missions have not been defined. Some non-operational activities may have an impact on operations by reassigning resources from operations to test. However, this "Day in the Life" material assumes there were no impacts from these activities to ingest, production, archive and data distribution operations.

Table 5.8.3-1. Activities in the Day in the Life of ECS at NSIDC (1 of 2)

Activity	Description	Metrics (daily average)
ECS production planning	Processing	Number of processes
	• AM1/MODIS	534
	• AM1/Subsetting*	1,170
	Reprocessing	
	• AM1/MODIS	534
	• AM1/Subsetting reprocessing*	1,170

Table 5.8.3-1. Activities in the Day in the Life of ECS at NSIDC (2 of 2)

Activity	Description	Metrics (daily average)
ECS ingest	Processing	Ingests per day
	• AM1/MODIS	12 from GSFC
	Reprocessing***	
	• AM1/MODIS	48 from archive
	Other	
	• Migrated V0 data	26 from V0 migration system
	• Ad hoc data**	48 from miscellaneous sources
ECS product generation	Processing	Hours of product generation
	• AM1/MODIS	7 days per week, 8 hours/day
	• AM1/Subsetting*	7 days per week, 8 hours/day
	Reprocessing	
	• AM1/MODIS	7 days per week, 8 hours/day
	• AM1/Subsetting*	7 days per week, 8 hours/day
ECS archive	Processing	# of Files: Vol. (MB)
	• AM1/MODIS	528: 12,837
	• AM1/Subsetting*	311: 3,159
	Reprocessing	
	• AM1/MODIS	528: 12,837
	• AM1/Subsetting*	311: 3,159
	Other	
	• Migrated V0 data	26: 261
	• Ad hoc data**	30: 30
ECS electronic data distribution through ECS client or web	• User pull	Available 7 days/week, 24 hours/day
	• Number of user accesses per day	71
ECS hard media data distribution	• Distribution of hard media	Vol. (MB): # of Orders
		15,996: 9
ECS user services	• Staffed hours	5 days/week, 8 hours/day
ECS operations	Science data production	
	• Staffed hours	7 days/week, 8 hours/day
	• Un-staffed hours	No science data production
	Other operations	
	• Staffed hours	7 days/week, 8 hours/day
	• Un-staffed hours	Remote monitoring from SMC
ECS engineering	• Staffed hours	5 days/week, 8 hours/day

* Subsetting includes those processes and files described as subsetting of various MODIS products. An equivalent processing and archive load for subsetting of reprocessed MODIS data is also assumed.

** "Ad Hoc" data are used as a place holder for any miscellaneous files that are archived. Examples include files ingested from hard media or electronically from users/SCFs.

*** "Ingest from archive" means that the data being reprocessed is being pulled from the ECS archive.

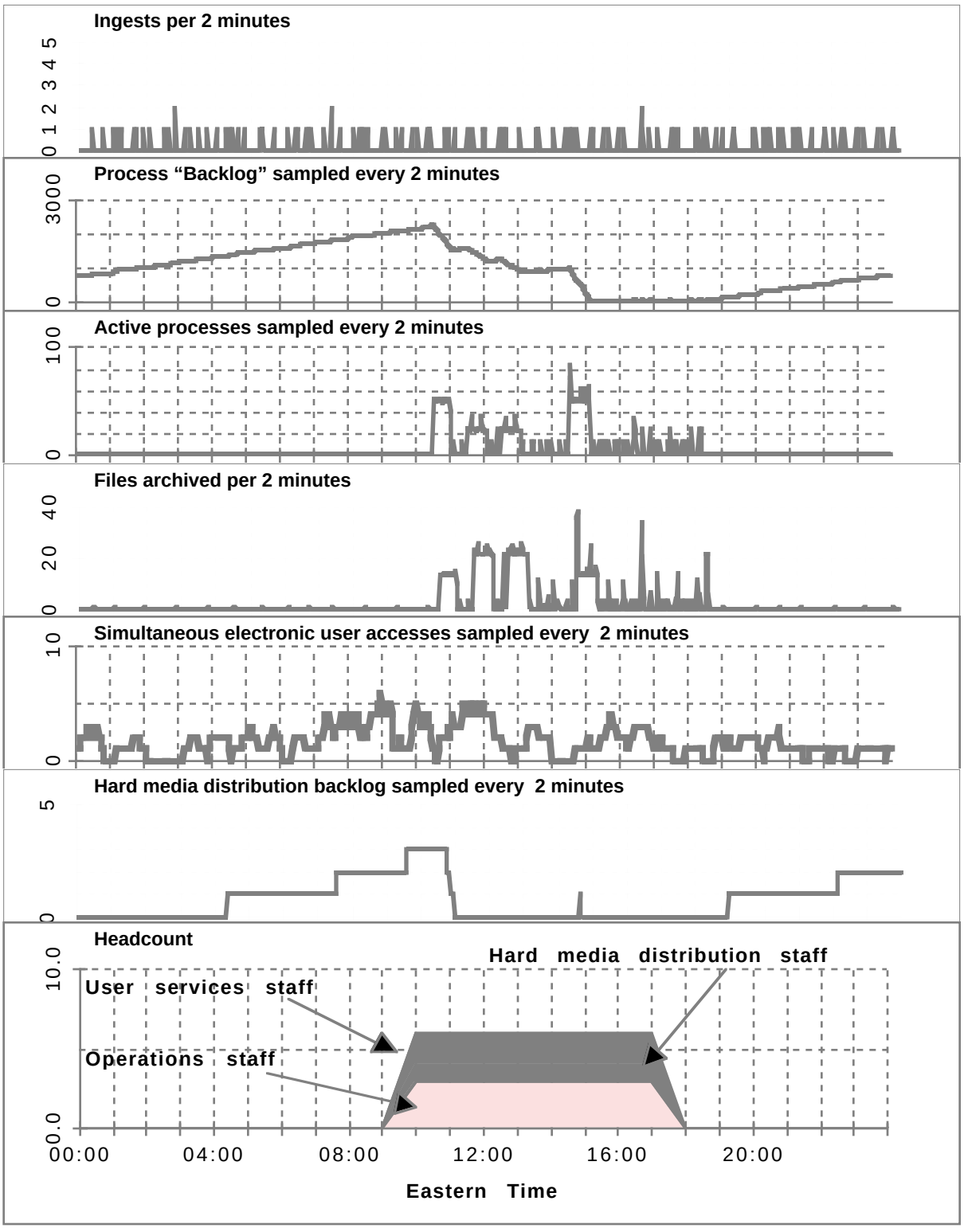

Figure 5.8.3-1. Overview of Day in the Life of ECS at NSIDC

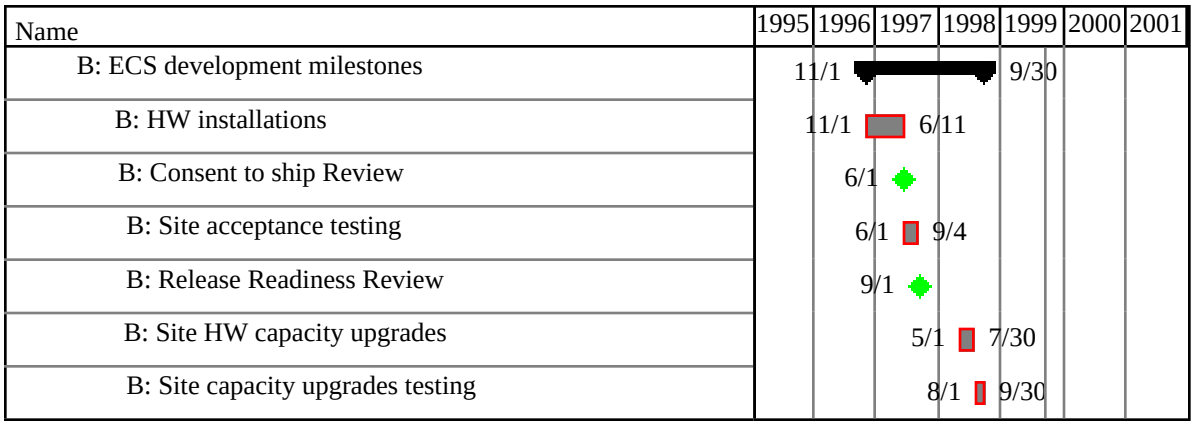

Figure 5.8.3-2. NSIDC Related Release B Development Milestones

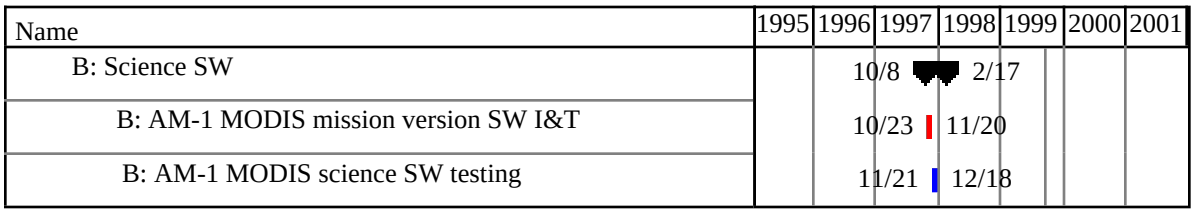

Figure 5.8.3-3. NSIDC Science SW Activities

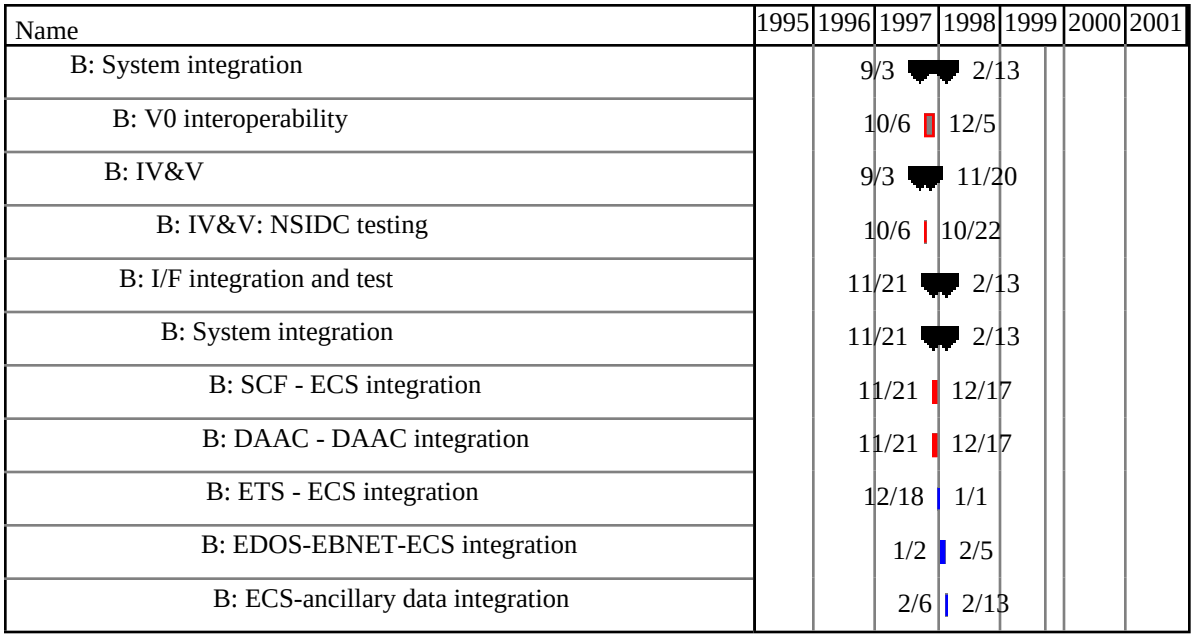

Figure 5.8.3-4. NSIDC System Integration Activities

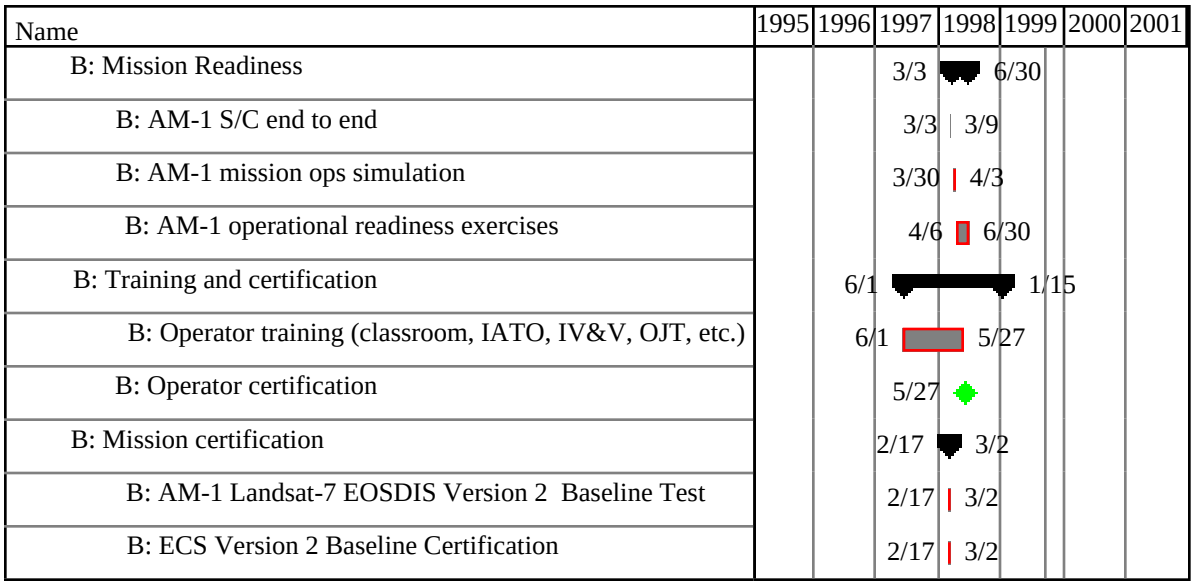

Figure 5.8.3-5. NSIDC Mission Readiness, and Training and Certification Activities

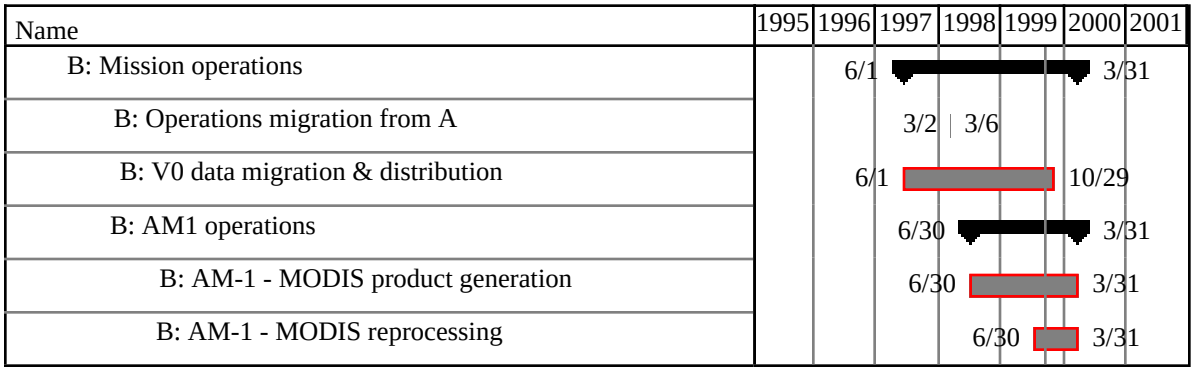

Figure 5.8.3-6. NSIDC Mission Operations Activities

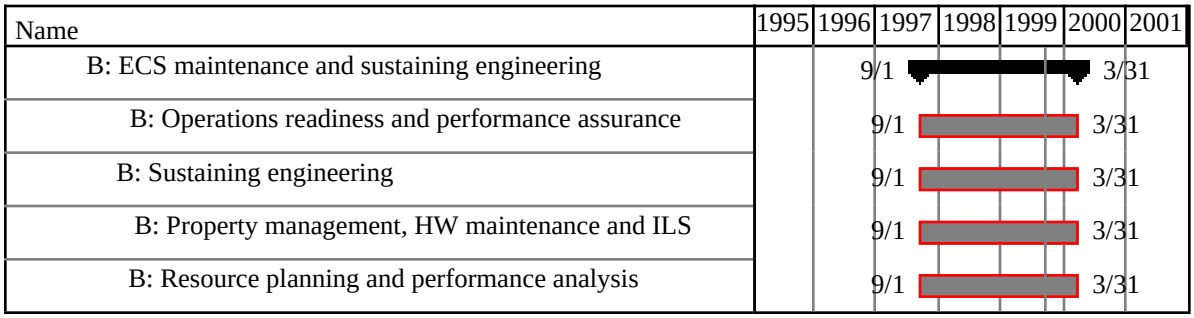

Figure 5.8.3-7. NSIDC Maintenance and Sustaining Engineering Activities

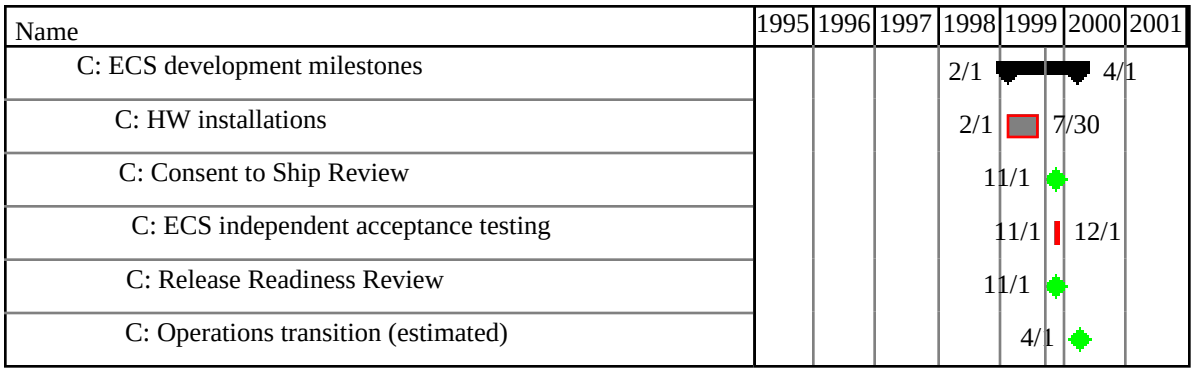

Figure 5.8.3-8. NSIDC Related Release C Development Milestones

5.8.3.1 NSIDC Production Operations

This section provides an end of day view of processing and reprocessing of AM1/MODIS products. Two sets of data are shown for the processing and reprocessing production:

- Process backlog. A process goes into a “backlog” state when data is ingested and its processing can be scheduled as a result of that ingest. For example, AM1/MODIS data is ingested twelve times a day. This model assumes that 1/12 of the daily processes go into a “backlog” state each time. A process may be one or more PGEs.
- Active Processes. The model assumes that two strings are available for use. The average time required for a process to complete is determined by dividing the number of processes executed in a day by the number of hours of production. The model assumes that each string can execute one or more processes in the two minute time step. The model also assumes that excess capacity is available and each process completes faster than the average as shown below:
  - Ten times faster for AM1/MODIS and AM1/Subsetting.

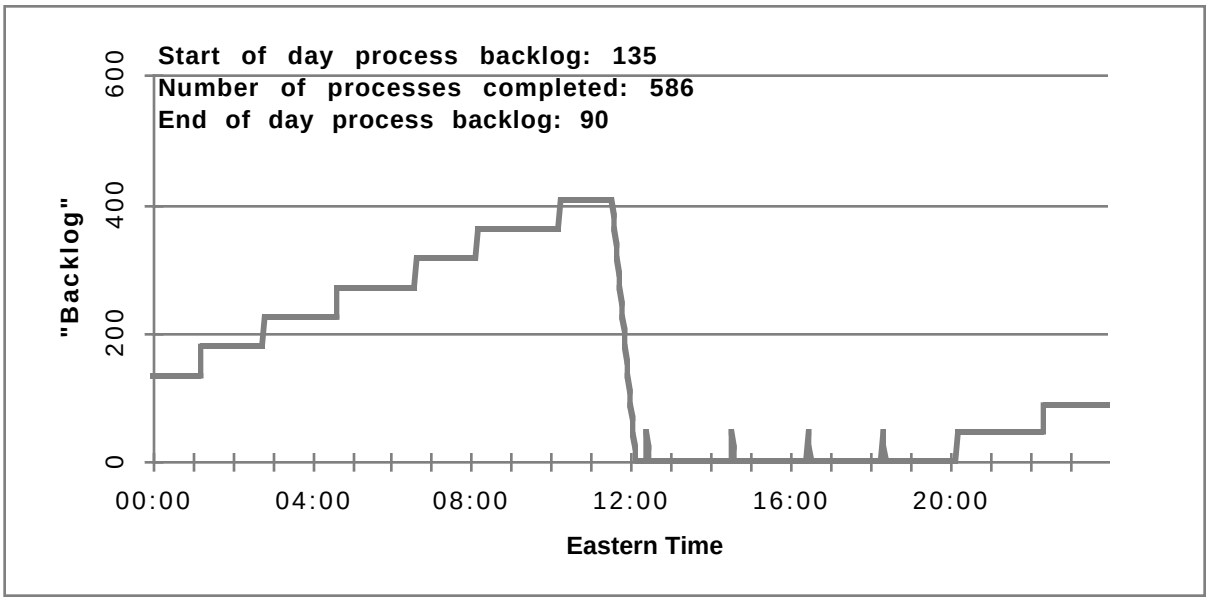

Figure 5.8.3.1-1. NSIDC AM1/MODIS Processing Process Backlog

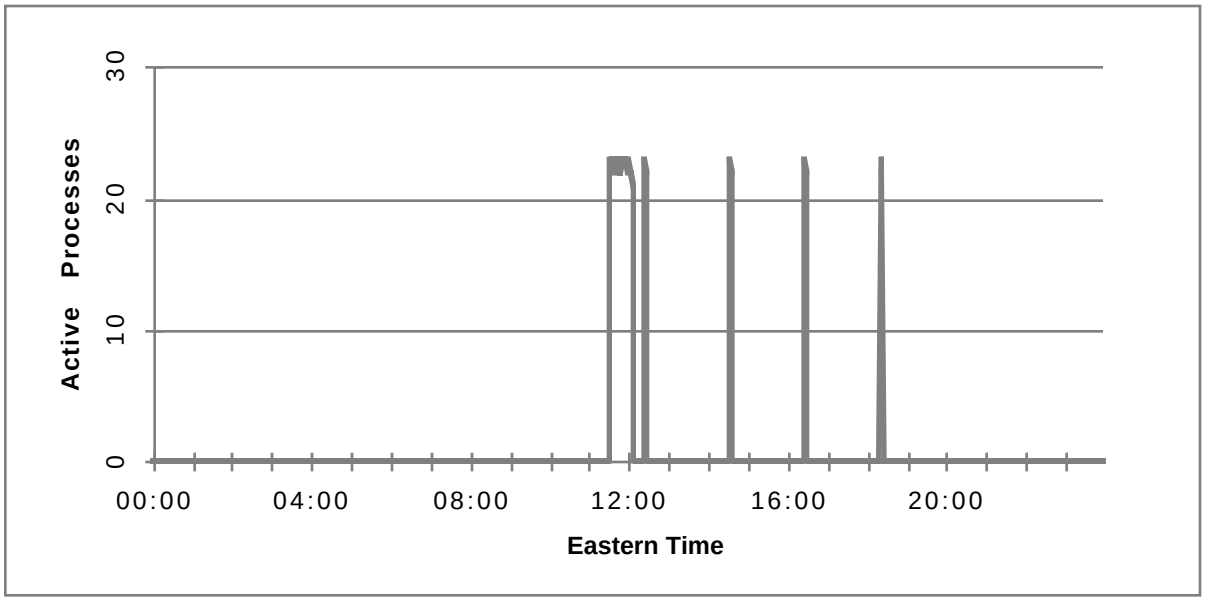

Figure 5.8.3.1-2. NSIDC AM1/MODIS Processing Active Processes

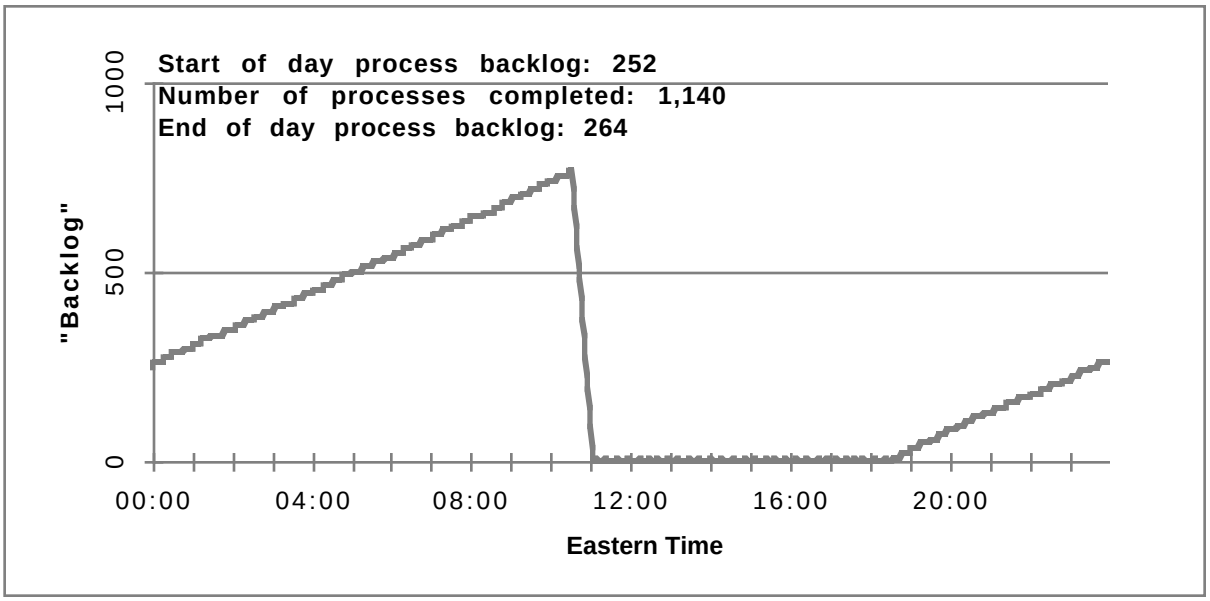

Figure 5.8.3.1-3. NSIDC AM1/Subsetting Processing Process Backlog

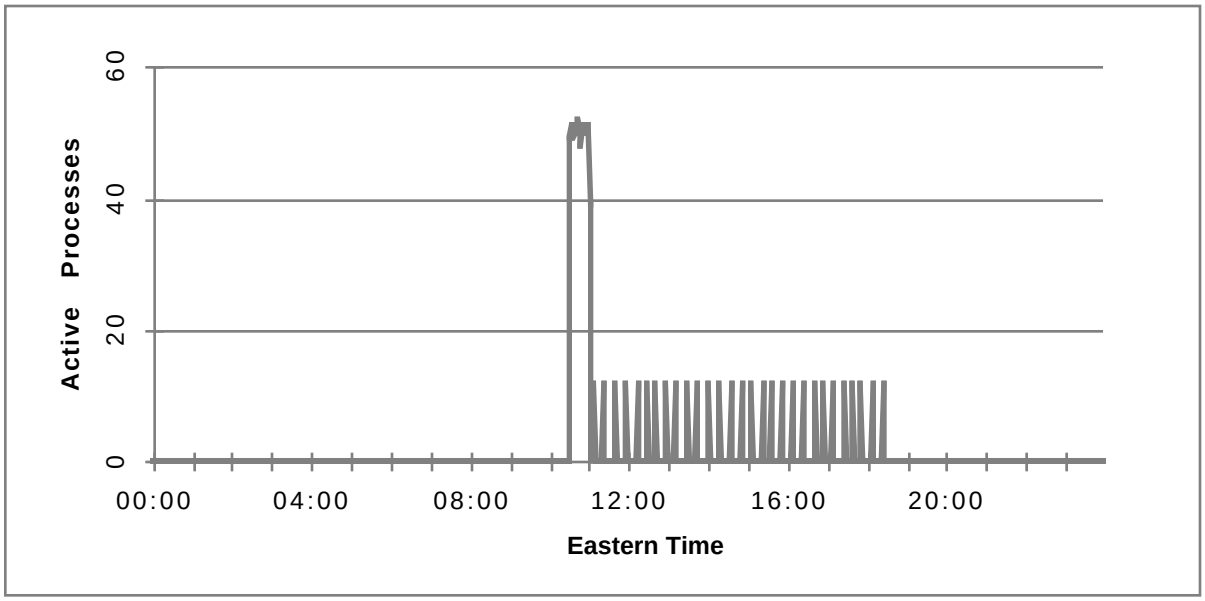

Figure 5.8.3.1-4. NSIDC AM1/Subsetting Processing Active Processes

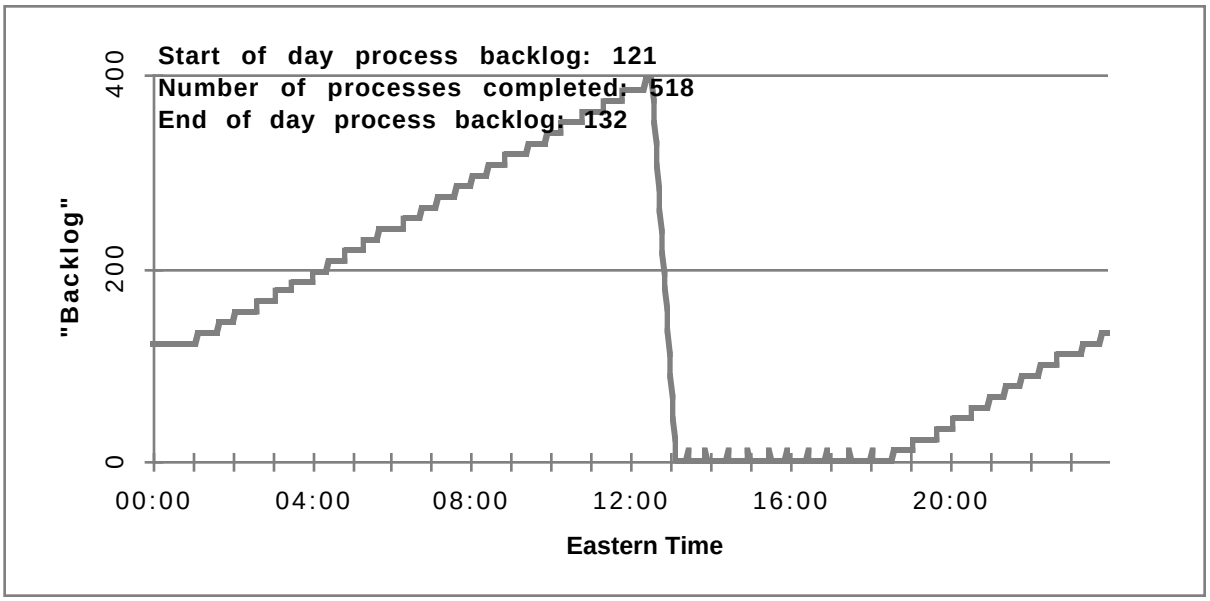

Figure 5.8.3.1-5. NSIDC AM1/MODIS Reprocessing Process Backlog

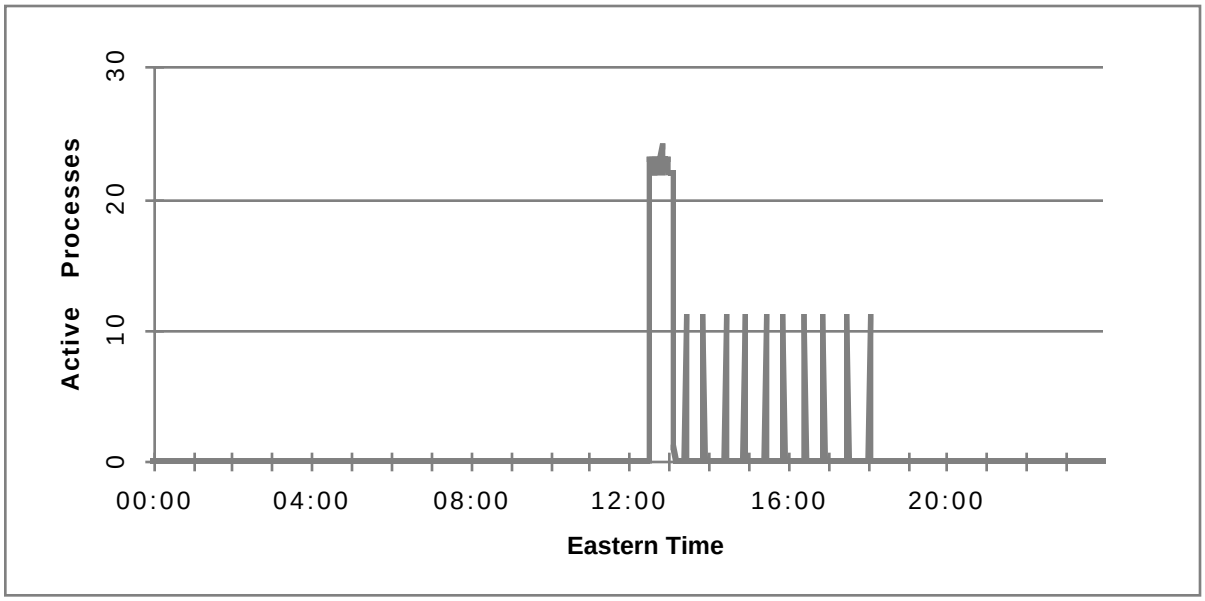

Figure 5.8.3.1-6. NSIDC AM1/MODIS Reprocessing Active Processes

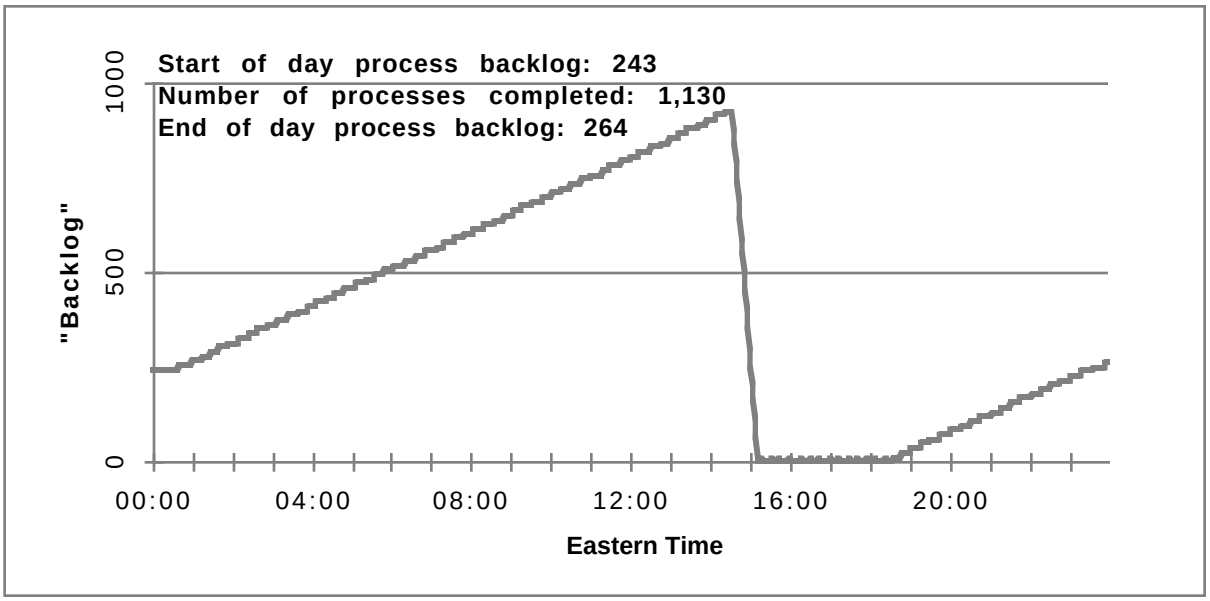

Figure 5.8.3.1-7. NSIDC AM1/Subsetting Reprocessing Process Backlog

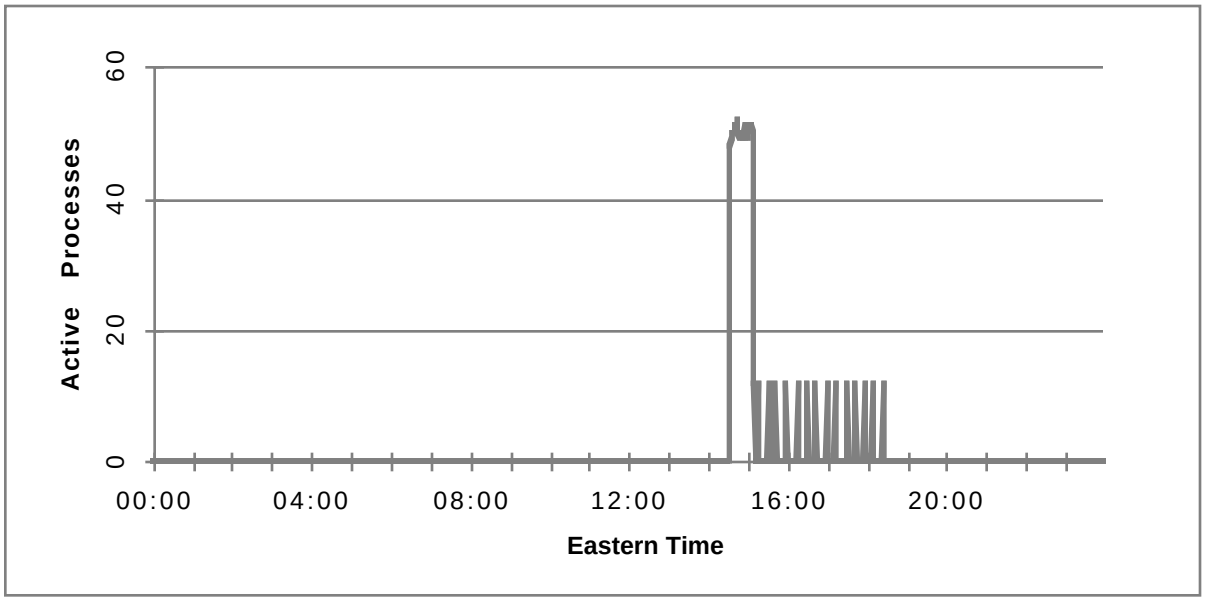

Figure 5.8.3.1-8. NSIDC AM1/Subsetting Reprocessing Active Processes

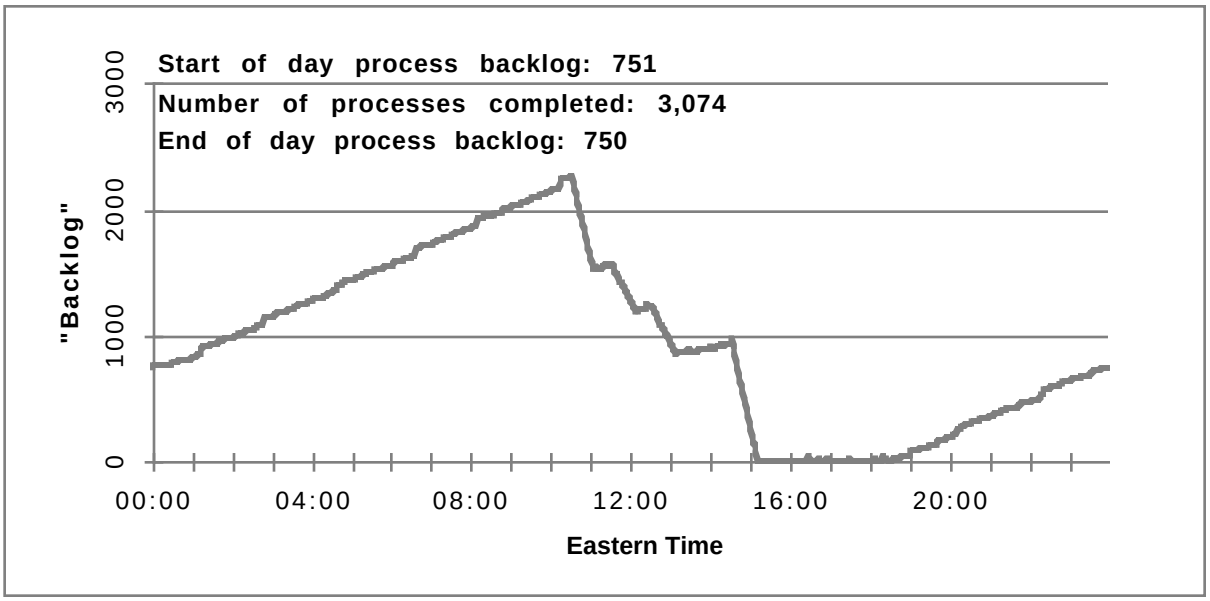

Figure 5.8.3.1-9. NSIDC Composite Process Backlog

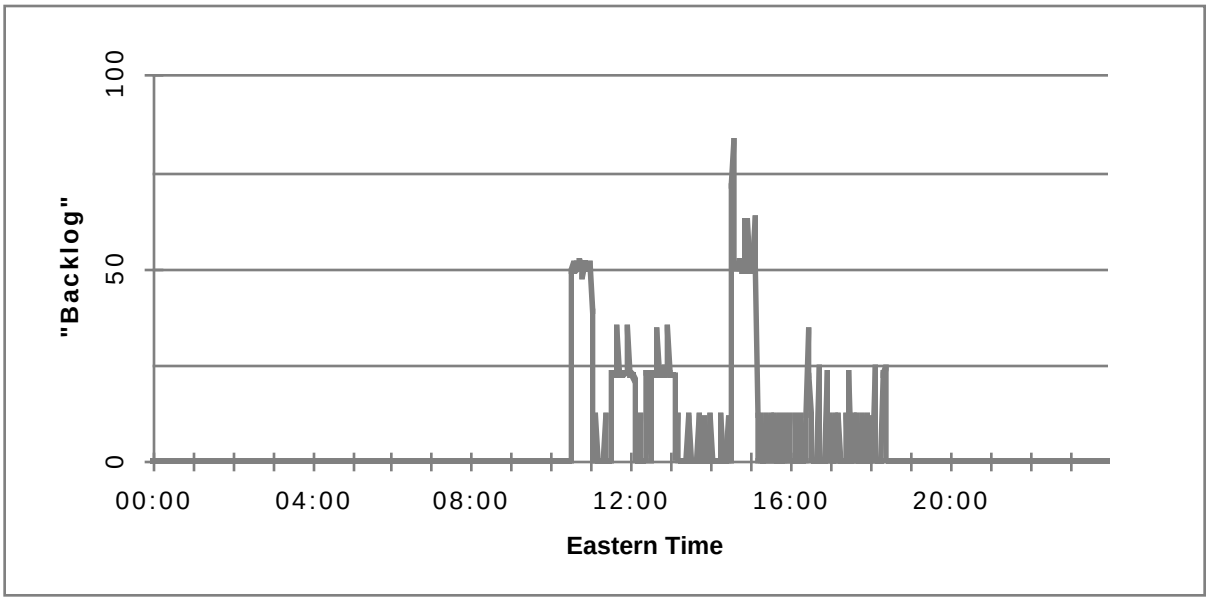

Figure 5.8.3.1-10. NSIDC Composite Active Processes

5.8.3.2 NSIDC Archive Operations

The Production Monitor/QA monitors the insertion of produced products and supporting files into the archive. The figures in this section show the archive writes for activities shown in Table 5.8.3-1.

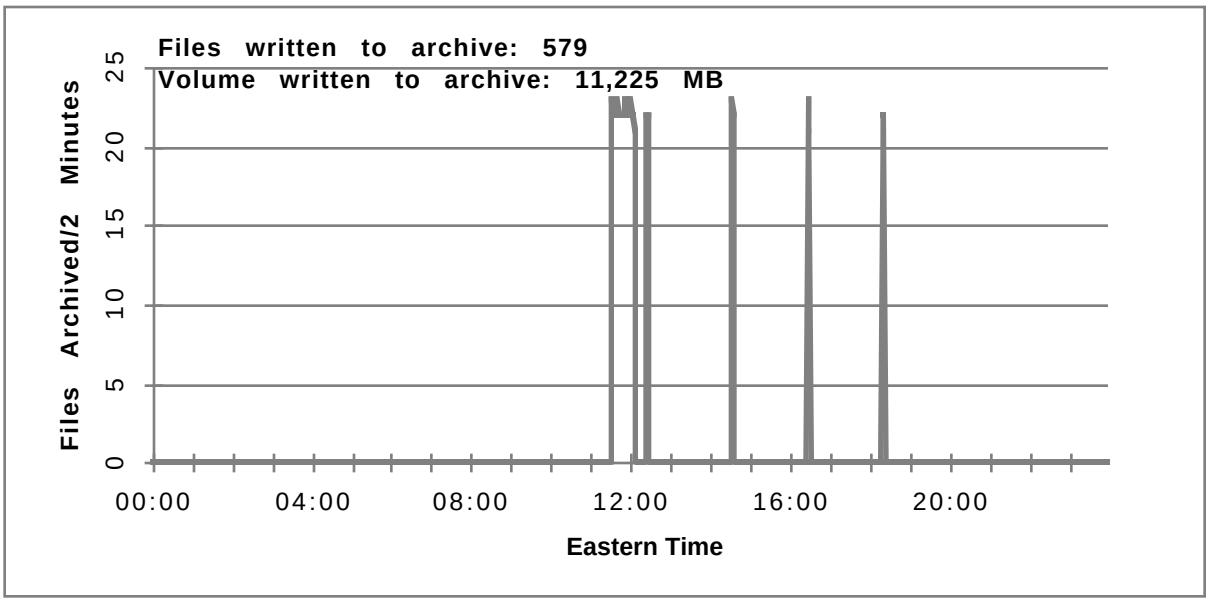

Figure 5.8.3.2-1. NSIDC AM1/MODIS Routine Product Archive Write Operations

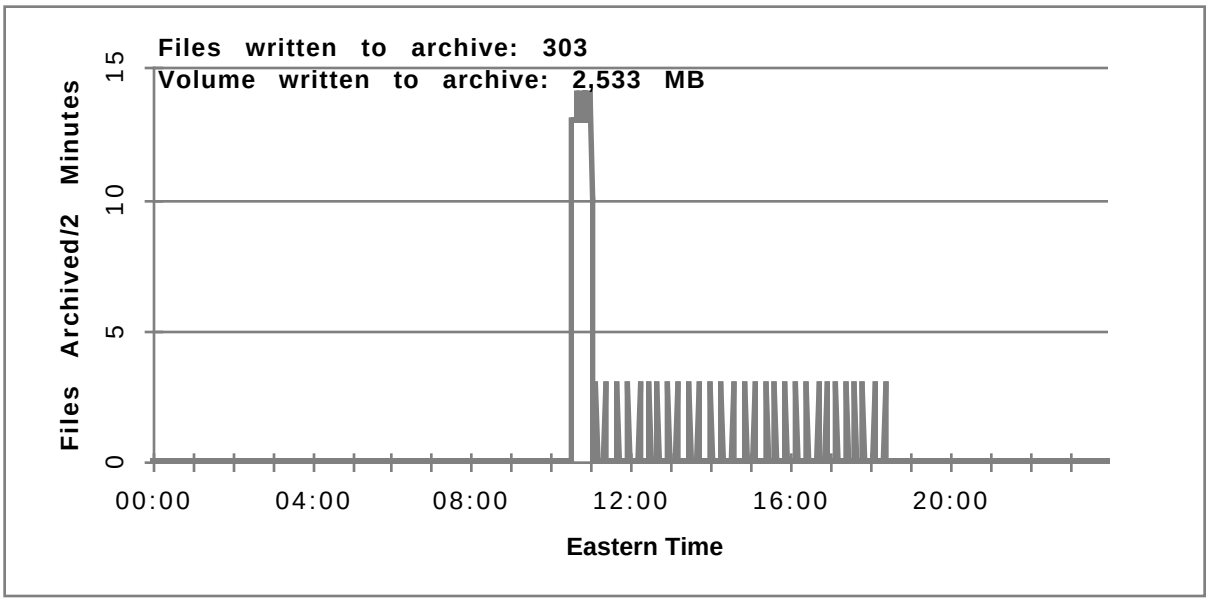

Figure 5.8.3.2-2. NSIDC AM1/Subsetting Routine Product Archive Write Operations

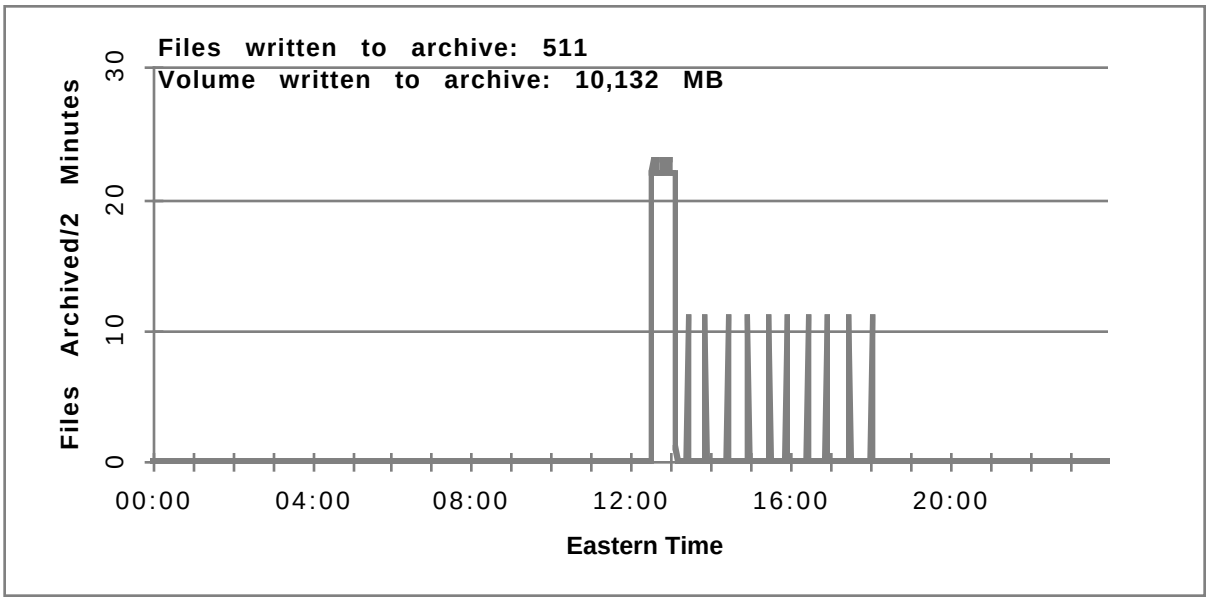

Figure 5.8.3.2-3. NSIDC AM1/MODIS Reprocessing Product Archive Write Operations

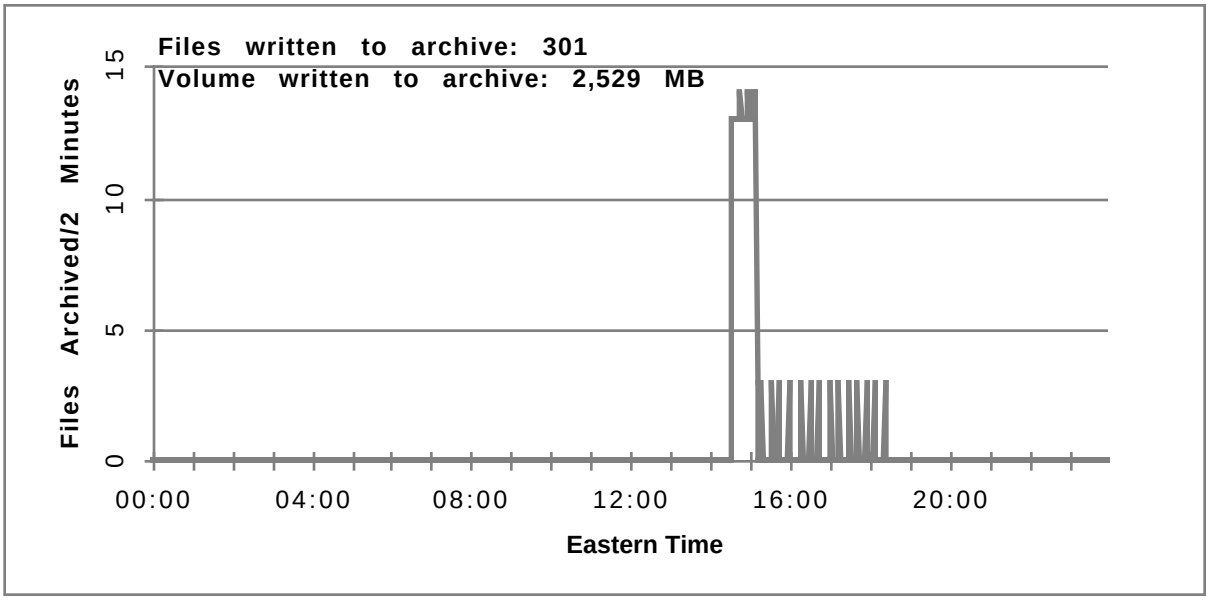

Figure 5.8.3.2-4. NSIDC AM1/Subsetting Reprocessing Product Archive Write Operations

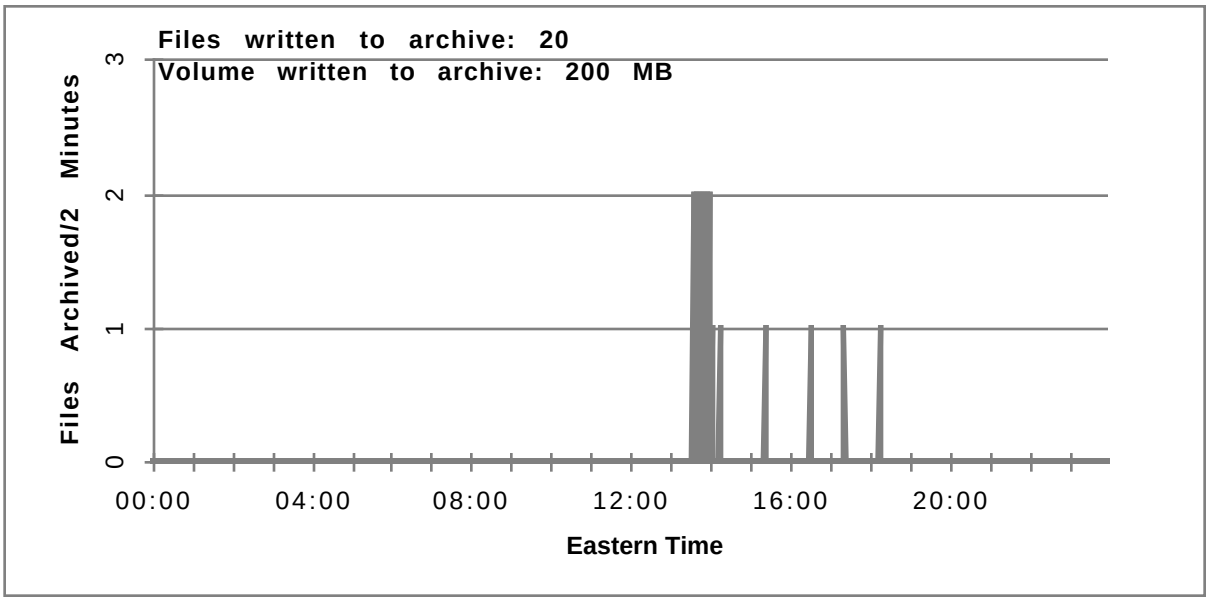

Figure 5.8.3.2-5. NSIDC V0 Migration Archive Write Operations

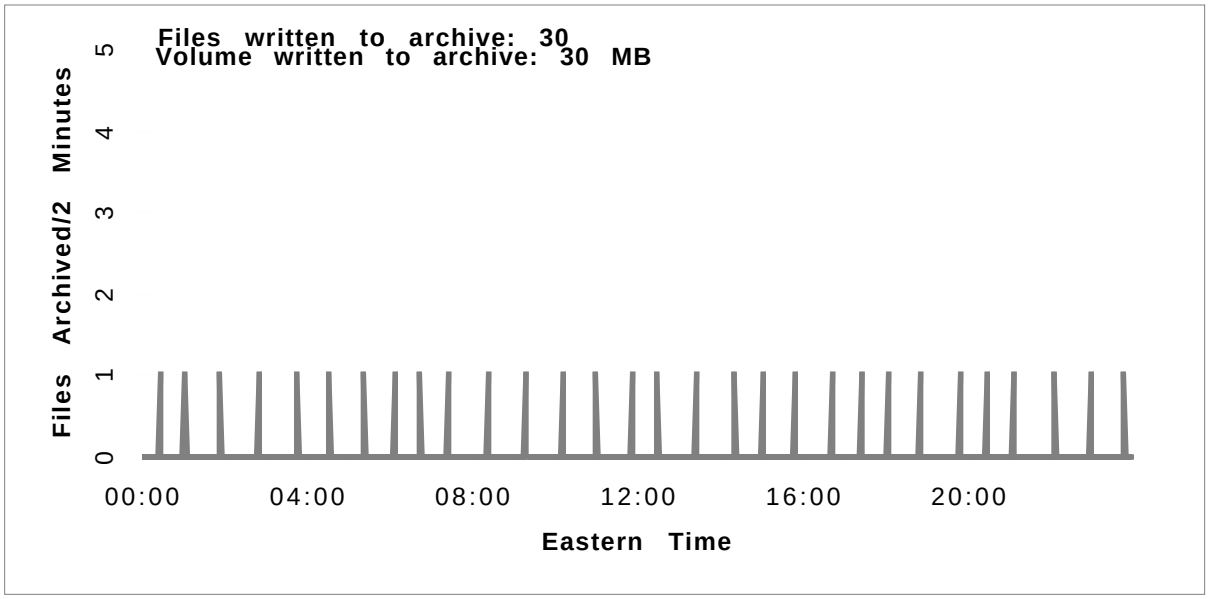

Figure 5.8.3.2-6. NSIDC Ad Hoc Archive Write Operations

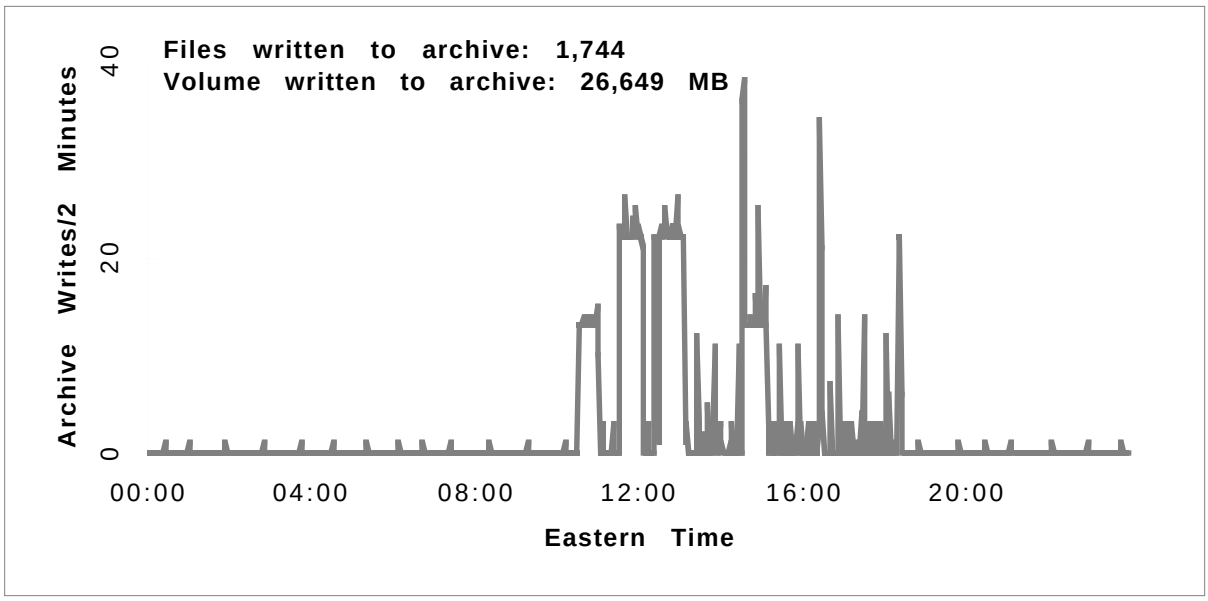

Figure 5.8.3.2-7. NSIDC Composite Archive Write Operations

5.8.3.3 NSIDC Product Distribution Operations

5.8.3.3.1 NSIDC Hard Media Distribution Operations

Table 5.8.3.3-1 summarizes the key parameters that influence distribution of hard media. The following steps in the creation of a media shipment are assumed:

1. Load media and initialize. The operator prints and applies the media labels, loads the media (either CD or Tape), and initiates writing of the media. It is assumed that any given order is limited to no more than 10 pieces of media. Larger orders are assumed to be segmented into multiple smaller orders.
2. Media creation. Data are written to the media.
3. Unload/reload. After the media are created, the media are unloaded and reloaded into a different device for a quality assurance read check.
4. Media QA. All data written to the media are read and compared to the original data.
5. Package. Media are unloaded, packaged, addressed, etc.

Figure 5.8.3.3-1 shows the day's hard media distribution backlog in terms of orders and media (and how it changed throughout the work day) for all data sets distributed by ECS. Figure 5.8.3.3-2 shows distribution of orders and number of media mapped against order size. Table 5.8.3.3-2 summarizes the day's media creation and distribution activities.

Table 5.8.3.3-1. NSIDC Hard Media Distribution Parameters

Topic	Assumption
Hours of hard media distribution	7 days per week, 8 hours per day
Number of media distribution operators	1 per shift*
Touch time assumptions: 1. Load media and initialize 2. Media creation 3. Unload/reload 4. Media QA 5. Packaging	 5 min. for 1st piece in an order, 1 min. for each additional piece of media Tape: • 500 KB/sec CD-ROM • 250 KB/sec 5 min. for 1st piece in an order, 1 min. for each additional piece of media See step 2. 10 min. for 1st piece in an order, 2 min. for each additional piece of media
Minimum order size	100 MB
Media volume capacity 1. CD-ROM 2. Tape	 2,000 MB 10,000 MB

* May also perform other functions including hard media ingest and/or mail distribution

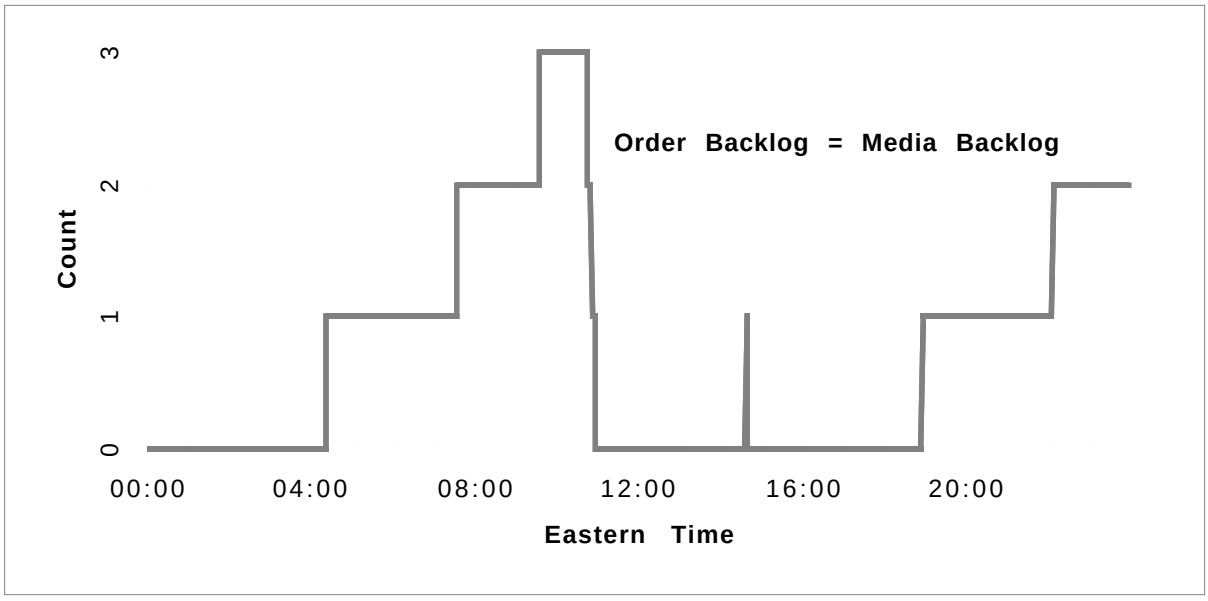

Figure 5.8.3.3-1. NSIDC Hard Media Distribution Backlog

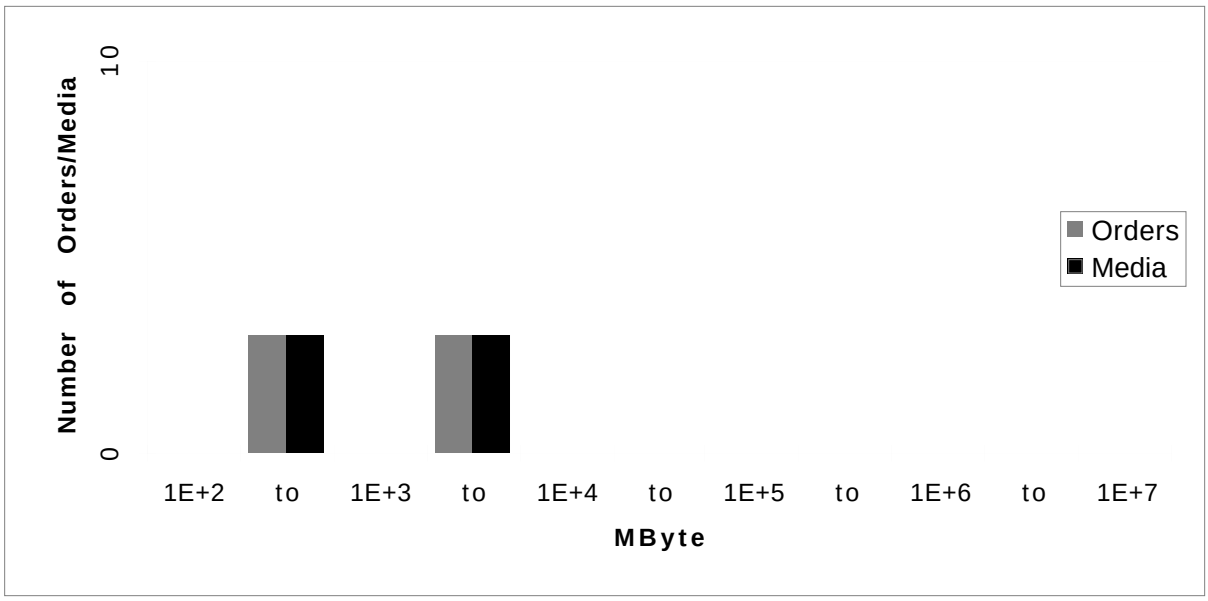

Figure 5.8.3.3-2. NSIDC Orders and Media by Order Volume

Table 5.8.3.3-2. NSIDC Media Distribution Summary

Topic	Number of orders	Volume (MB)	Number of media
Start of day in work	1	458	1
Start of day backlog	1	458	1
Orders received	9	23,617	17
Data distributed	7	22,120	15
End of day in work	3	1,955	3
End of day backlog	0	0	0

5.8.3.3.2 NSIDC Electronic Distribution Operations

Electronic distribution is performed 24 hours/day, 7 days/week. Figure 5.8.3.3-3 shows the day's distribution of user sessions that connect to ECS through the NSIDC DAAC.

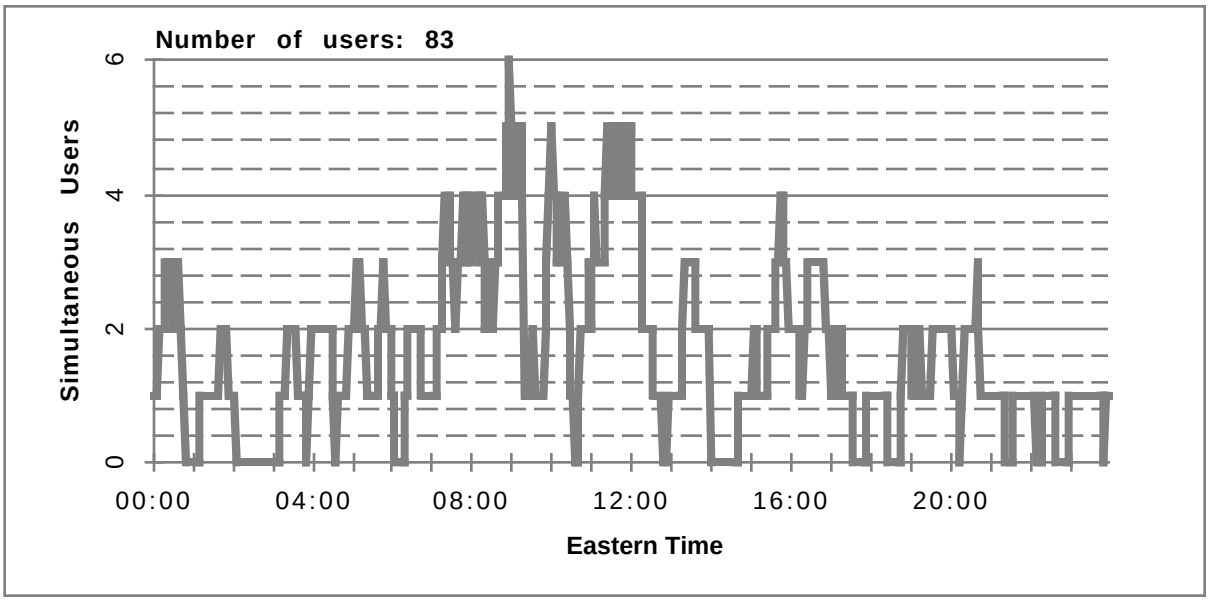

Figure 5.8.3.3-3. NSIDC User Sessions

5.9 Oak Ridge National Laboratory (ORNL)

This section describes the activities at the ECS portion of ORNL during the operation of ECS Release B.

5.9.1 Key Interfaces: ORNL DAAC-ECS

The ORNL ECS DAAC interfaces with multiple entities external to the DAAC. Figure 5.9.1-1 schematically illustrates the interfaces between the ECS at the ORNL DAAC and its external entities.

The following further describes the external entities, including those identified to support interface testing:

- ORNL V0 DAAC - This interface to ORNL ECS DAAC supports access, using the Version 0 IMS, to the V0 holdings that are not migrated to ECS. This interface is also used to support the V0 interoperability interface.
- SMC - This interface provides the capability for the ORNL DAAC to receive configuration data, scheduling directives, policy and procedure information and user registration information. The ORNL DAAC sends its summary fault and performance data, accounting data, resource utilization data, and status reports to SMC.
- Users - This interface is the mechanism for user community access to ECS data, products and services.
- ASTER GDS - This interface provides ORNL ECS user or ASTER GDS user to view the data holding and order production data from the other system.

- ORNL DAAC Unique System - This interface allows ORNL ECS DAAC to interoperate with ORNL DAAC Unique System and support ingest and archive of metadata from ORNL DAAC Unique System.

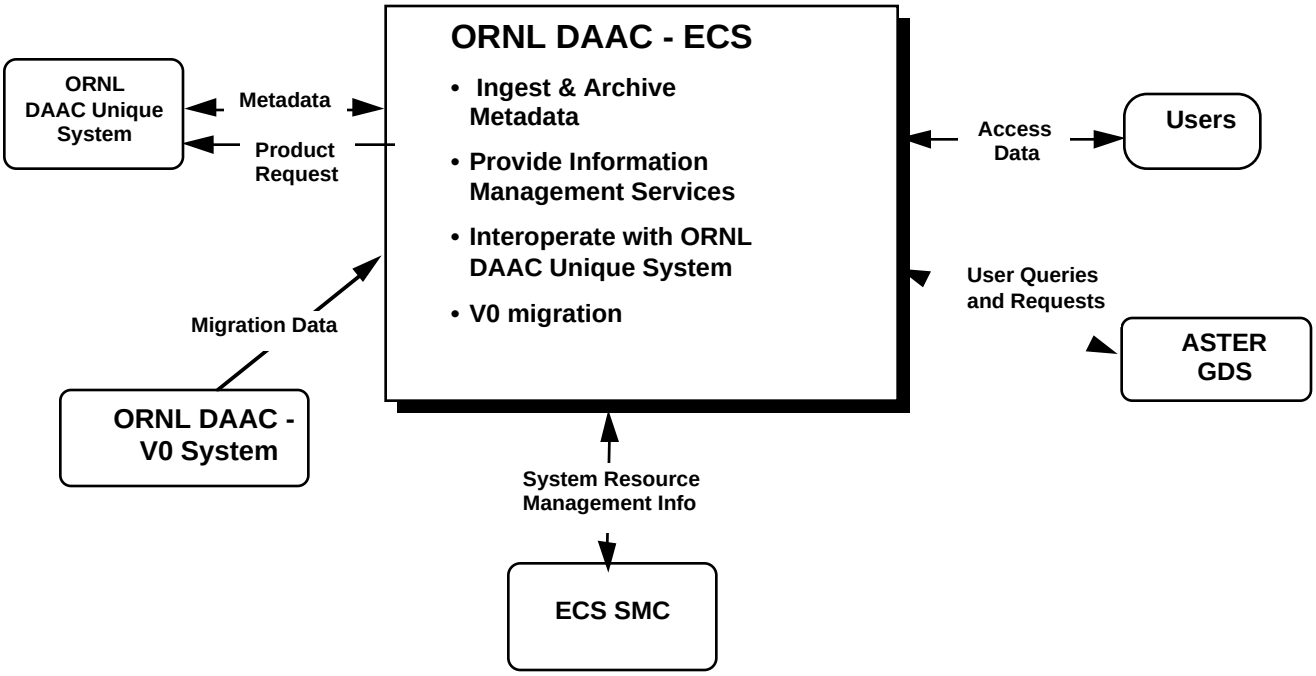

Figure 5.9.1-1. Release B Key Interfaces: ORNL DAAC-ECS

5.9.2 ORNL ECS Related Mission and Operations Activities

This section describes the mission and operation activities specific to the ECS portion of the ORNL DAAC during Release B. The ORNL User Pull Baseline during Release B is also included in this section.

5.9.2.1 ORNL Release B

The following is a list of the Release B mission and operations activities for the ORNL DAAC.

- S/W and H/W components of certain ECS subsystems
- Archive portion of Data Server provided by ORNL
- Support access to V0 data products

The ECS Contractor will install only information management systems hardware and software at ORNL. The ECS Contractor will also install infrastructure required for the current operation of the information management components.

The ECS components will be operated by ORNL staff. The ORNL staff will cooperate with personnel at other EOSDIS sites to exchange management and user data and to troubleshoot system problems

The ECS contractor will provide technical support services to ORNL for the integration of ECS information management systems to ORNL developed archive and processing systems.

5.9.2.2 ORNL User Pull Baseline

Table 5.9.2.2-1 lists the number of users and the number of accesses per year for the ORNL DAAC. See section 5.1.2 for a description of how the data was developed and definition of each of the parameters.

Table 5.9.2.2-1. ORNL Data Volumes and Usage Estimates

	1-Apr-97		1-Apr-98		1-Apr-99		1-Jul-99		1-Jan-00	
	Low	High	Low	High	Low	High	Low	High	Low	High
#Users/yr	0	0	550	900	600	1100	600	1200	600	1400
#DAAC Accesses/yr	0	0	5500	18000	6000	22000	6000	24000	6000	28000

5.9.3 Day in the Life of ECS at the ORNL DAAC

Activities described in this section occurred on Wednesday, 01-Sep-99, during Epoch "k." This section provides a retrospective look at the operational activities of the day. That is, it is the "as executed" data for that day. Activities (and their key metrics) performed with ECS resources at the DAAC are shown in Table 5.9.3-1. Note that these are daily averages for Epoch k. Data for this day may vary from the average. Figure 5.9.3-1 shows a composite summary of those activities.

Figures 5.9.3-2 through 5.9.3-8 show Release B and Release C activities leading up to and during this period that have the potential to affect operations. Activities related to Releases C & D missions have not been defined. Some non-operational activities may have an impact on operations by reassigning resources from operations to test. However, this "Day in the Life" material assumes there were no impacts from these activities to ingest, production, archive and data distribution operations.

Table 5.9.3-1. Activities in the Day in the Life of ECS at ORNL (1 of 2)

Activity	Description	Metrics (daily average)
ECS production planning	Processing • None Reprocessing • None	Number of processes

Table 5.9.3-1. Activities in the Day in the Life of ECS at ORNL (2 of 2)

Activity	Description	Metrics (daily average)	
ECS ingest	Processing	Ingests per day	
	• None	1	
	Reprocessing		
	• None		
	Other		
	• Science data*	48 from miscellaneous sources	
	• Metadata	48 from miscellaneous sources	
	• Migrated V0 data	23 from V0 migration system	
	• Ad hoc data**	48 from miscellaneous sources	
ECS product generation	Processing	Hours of product generation	
	• None		
	Reprocessing		
	• None		
ECS archive	Processing	# of Files	Vol. (MB)
	• None		
	Reprocessing		
	• None		
	Other		
	• Science data*	125	125
	• Metadata	125	125
	• Migrated V0 data	23	23
	• Ad hoc data**	27	27
ECS electronic data distribution through ECS client or web	• User pull	Available 7 days/week, 24 hours/day	
	• Number of user accesses per day	66	
ECS hard media data distribution	• Distribution of hard media	Vol. (MB)	# of Orders
		15,996	9
ECS user services	• Staffed hours	5 days/week, 8 hours/day	
ECS operations	Science data production		
	• None		
	Other operations		
	• Staffed hours	5 days/week, 8 hours/day	
	• Un-staffed hours	Remote monitoring from SMC	
ECS engineering	• Staffed hours	5 days/week, 8 hours/day	

* "Science data" is intended to cover the ingest of data collected for archive by the DAAC.

** "Ad Hoc" data are used as a place holder for any miscellaneous files that are archived. Examples include files ingested from hard media or electronically from users/SCFs. Ad Hoc archive writes are estimated at 10% of the files and volume from Metadata, Science data, and Migrated V0 data

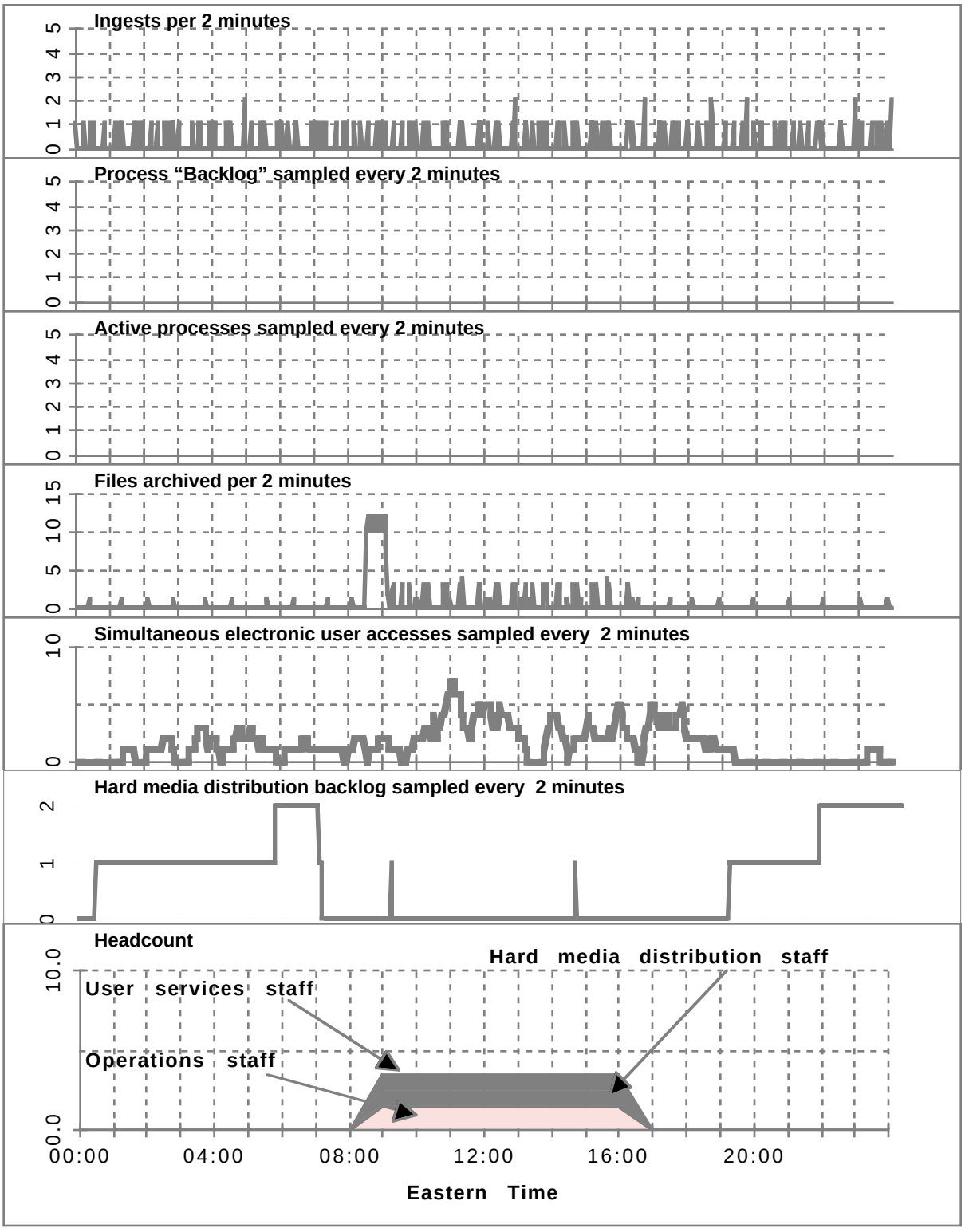

Figure 5.9.3-1. Overview of Day in the Life of ECS at ORNL

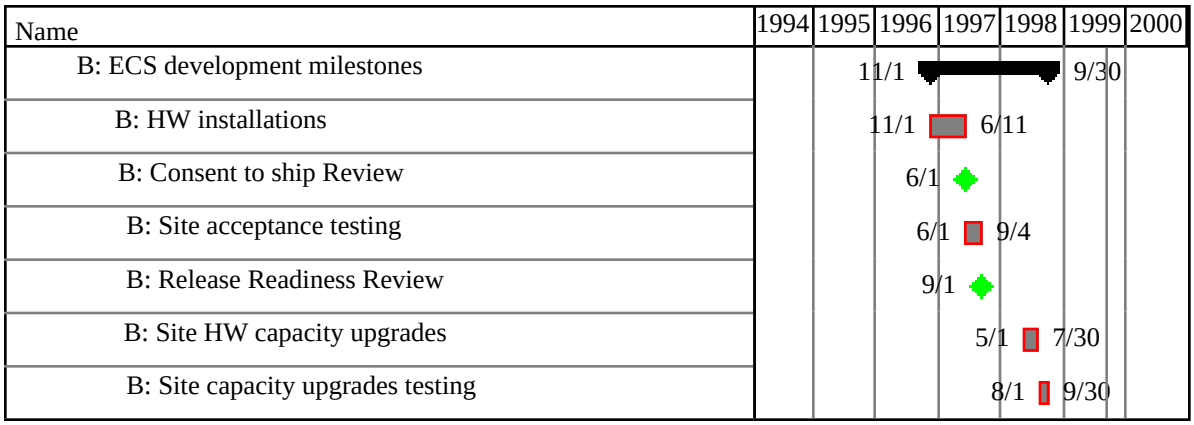

Figure 5.9.3-2. ORNL Related Release B Development Milestones

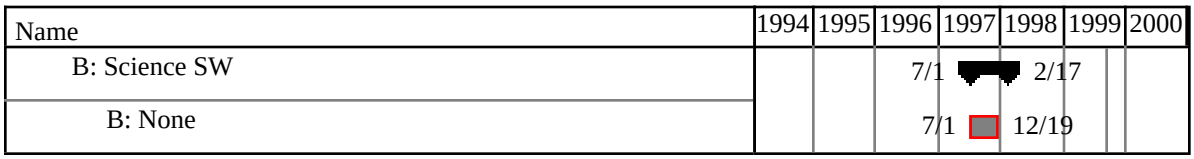

Figure 5.9.3-3. ORNL ECS Science SW Activities

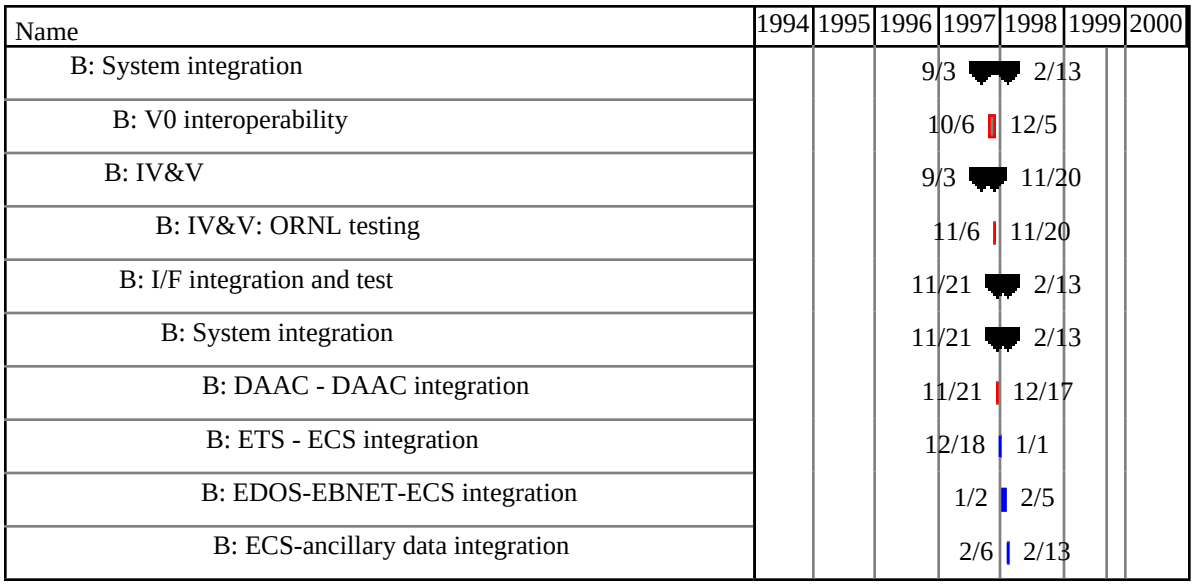

Figure 5.9.3-4. ORNL System Integration Activities

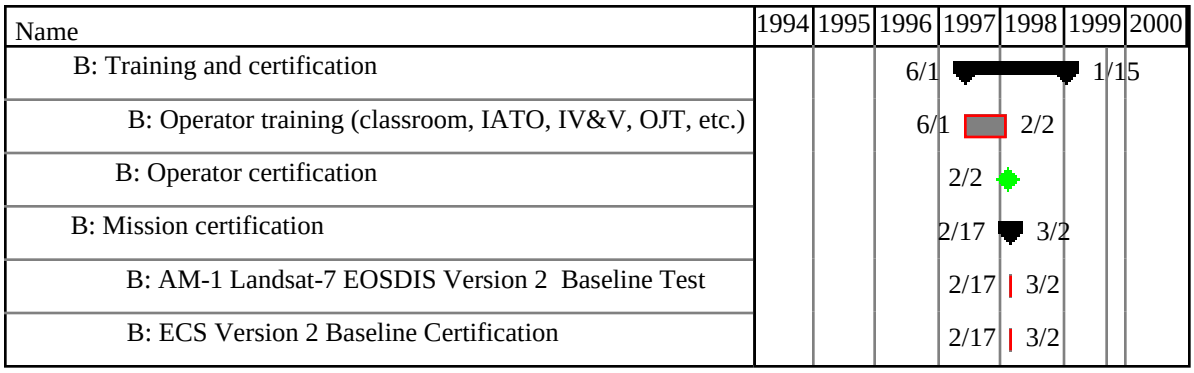

Figure 5.9.3-5. ORNL Training and Certification Activities

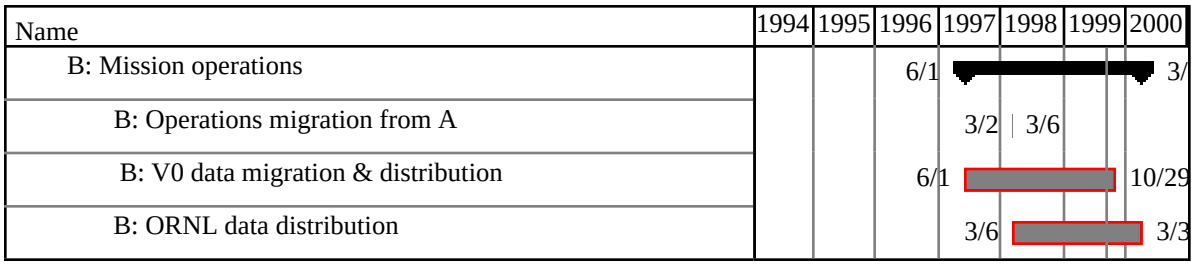

Figure 5.9.3-6. ORNL Mission Operations Activities

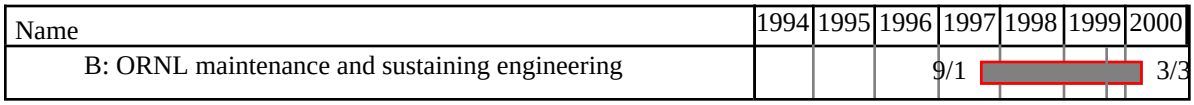

Figure 5.9.3-7. ORNL Maintenance and Sustaining Engineering Activities

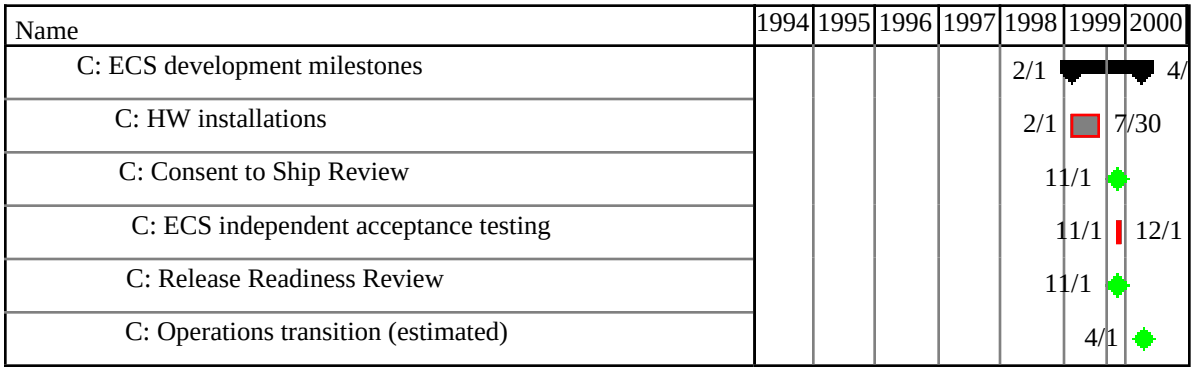

Figure 5.9.3-8. ORNL Related Release C Development Milestones

5.9.3.1 ORNL Production Operations

ECS does not provide science data production functionality at ORNL.

5.9.3.2 ORNL Archive Operations

The Resource Manager/Archive Manager monitors the insertion of produced products and supporting files into the archive. The figures in this section show the archive writes for activities shown in Table 5.9.3-1.

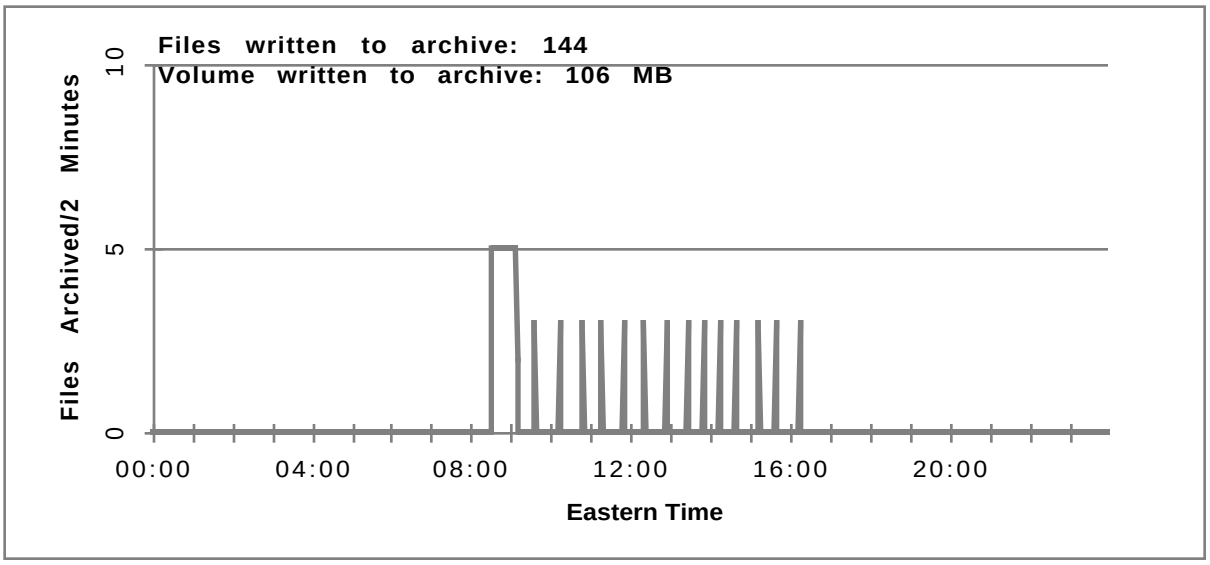

Figure 5.9.3.2-1. ORNL Science Data Archive Write Operations

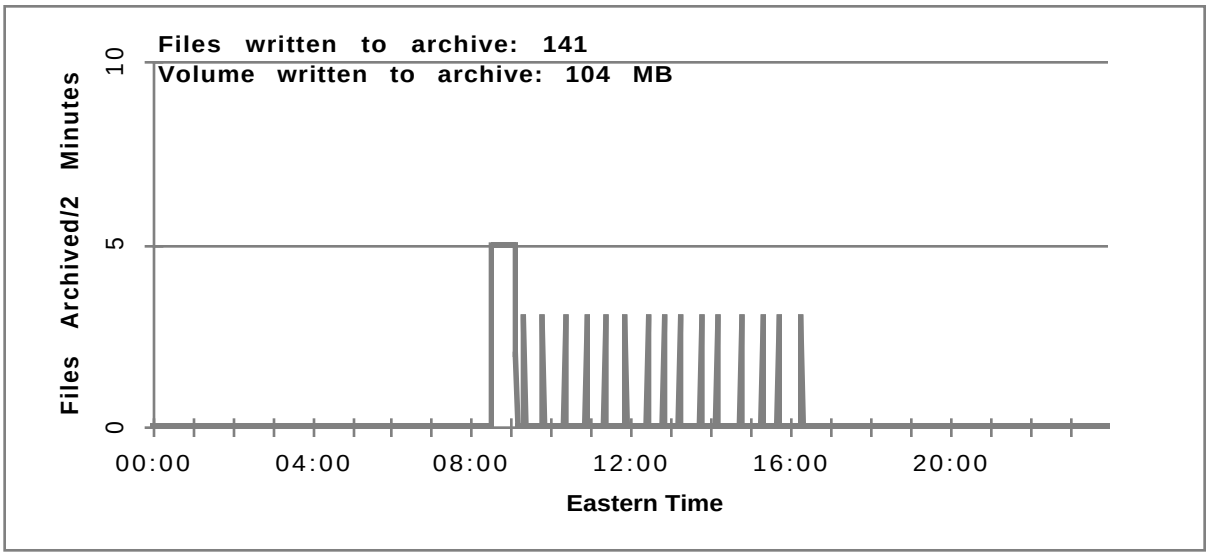

Figure 5.9.3.2-2. ORNL Metadata Archive Write Operations

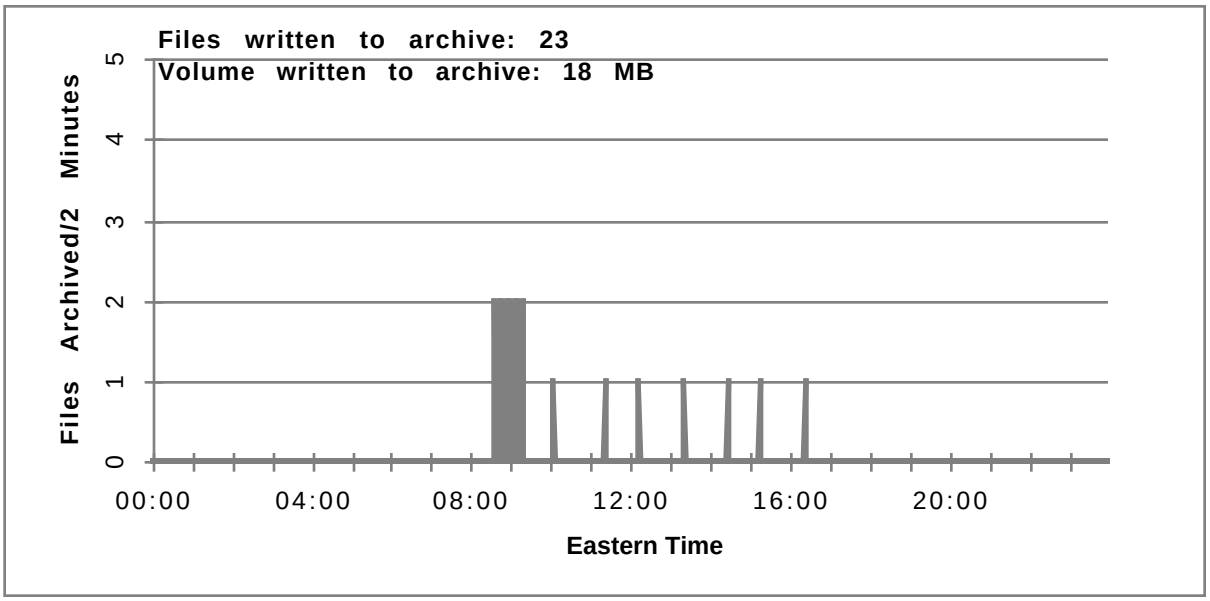

Figure 5.9.3.2-3. ORNL V0 Migration Archive Write Operations

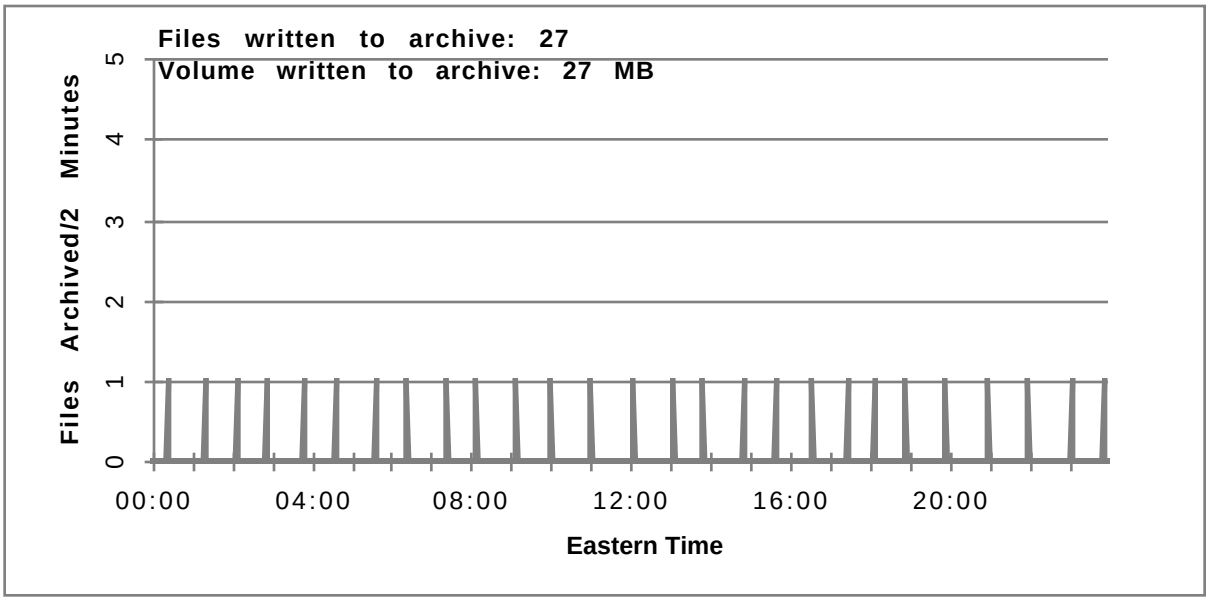

Figure 5.9.3.2-4. ORNL Ad Hoc Archive Write Operations

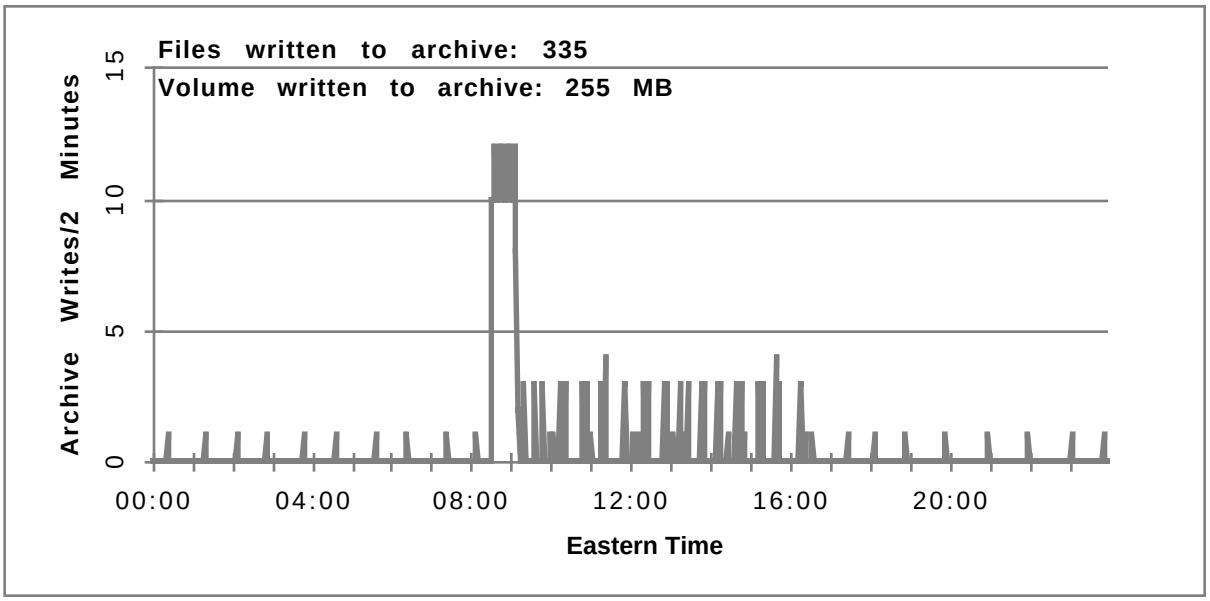

Figure 5.9.3.2-5. ORNL Composite Archive Write Operations

5.9.3.3 ORNL Product Distribution Operations

5.9.3.3.1 ORNL Hard Media Distribution Operations

Table 5.9.3.3-1 summarizes the key parameters that influence distribution of hard media. The following steps in the creation of a media shipment are assumed:

1. Load media and initialize. The operator prints and applies the media labels, loads the media (either CD or Tape), and initiates writing of the media. It is assumed that any given order is limited to no more than 10 pieces of media. Larger orders are assumed to be segmented into multiple smaller orders.
2. Media creation. Data are written to the media.
3. Unload/reload. After the media are created, the media are unloaded and reloaded into a different device for a quality assurance read check.
4. Media QA. All data written to the media are read and compared to the original data.
5. Package. Media are unloaded, packaged, addressed, etc.

Figure 5.9.3.3-1 shows the day's hard media distribution backlog in terms of orders and media (and how it changed throughout the work day) for all data sets distributed by ECS. Figure 5.9.3.3-2 shows distribution of orders and number of media mapped against order size. Table 5.9.3.3-2 summarizes the day's media creation and distribution activities.

Table 5.9.3.3-1. ORNL Hard Media Distribution Parameters

Topic	Assumption
Hours of hard media distribution	5 days per week, 8 hours per day
Number of media distribution operators	1 per shift*
Touch time assumptions: 1. Load media and initialize 2. Media creation 3. Unload/reload 4. Media QA 5. Packaging	 5 min. for 1st piece in an order, 1 min. for each additional piece of media Tape: • 500 KB/sec CD-ROM • 250 KB/sec 5 min. for 1st piece in an order, 1 min. for each additional piece of media See step 2. 10 min. for 1st piece in an order, 2 min. for each additional piece of media
Minimum order size	100 MB
Media volume capacity 1. CD-ROM 2. Tape	 2,000 MB 10,000 MB

* May also perform other functions including resource management, hard media ingest and/or mail distribution

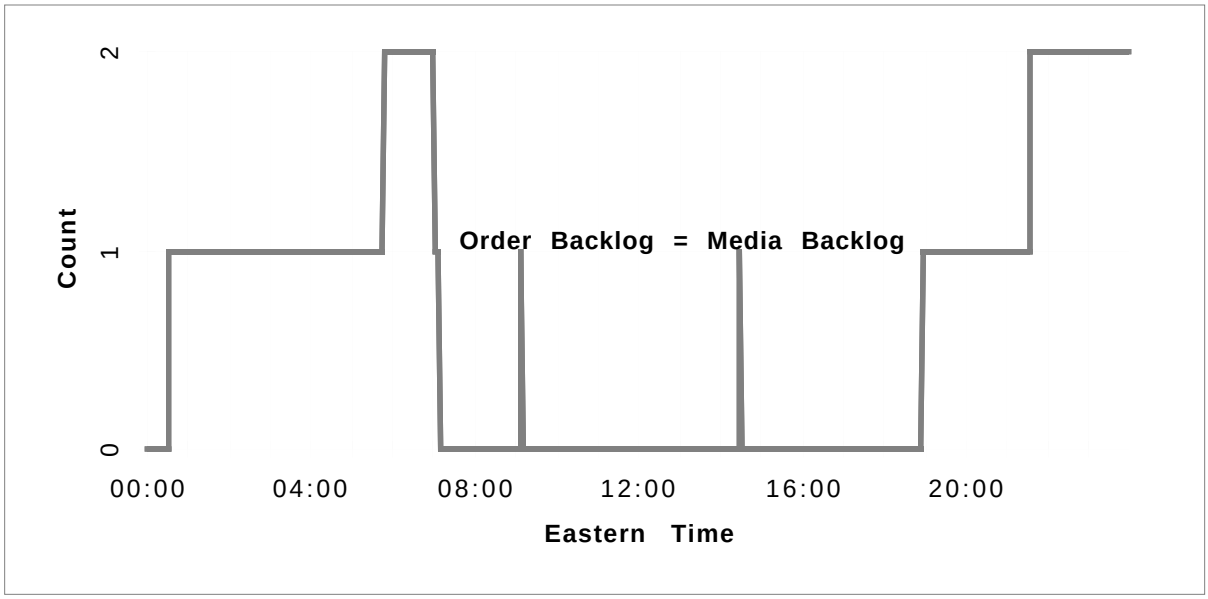

Figure 5.9.3.3-1. ORNL Hard Media Distribution Backlog

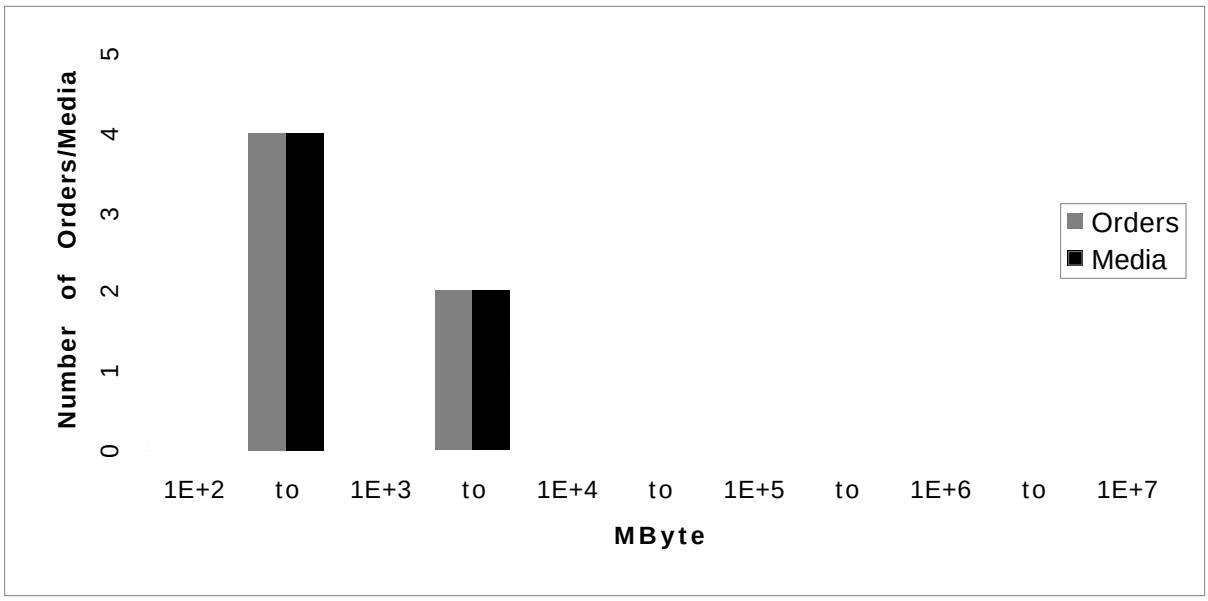

Figure 5.9.3.3-2. ORNL Orders and Media by Order Volume

Table 5.9.3.3-2. ORNL Media Distribution Summary

Topic	Number of orders	Volume (MB)	Number of media
Start of day in work	2	6,666	2
Start of day backlog	2	6,666	2
Orders received	5	26,755	10
Data distributed	4	10,763	7
End of day in work	2	10,483	3
End of day backlog	1	12,174	2

5.9.3.3.2 ORNL Electronic Distribution Operations

Electronic distribution is performed 24 hours/day, 7 days/week. Figure 5.9.3.3-3 shows the day's distribution of user sessions that connect to ECS through the ORNL DAAC.

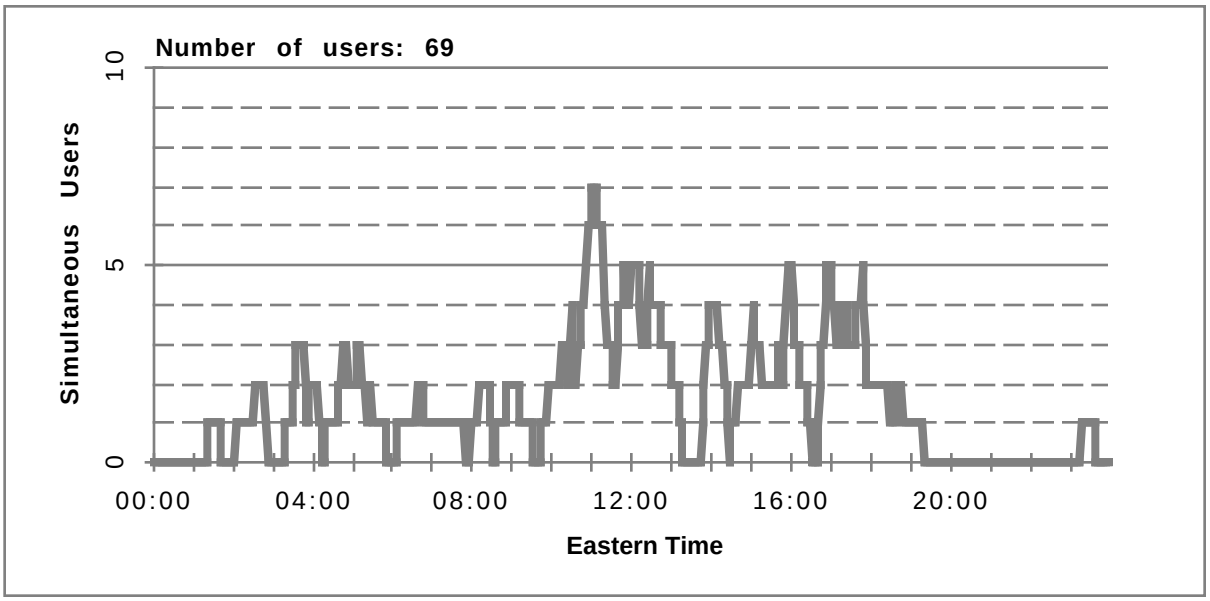

Figure 5.9.3.3-3. ORNL User Sessions

5.10 System Monitoring and Coordination Center (SMC)

This section describes the activities at the ECS portion of SMC during the operation of ECS Release B.

5.10.1 Key Interfaces: ECS SMC

The SMC interfaces with multiple external entities. Figure 5.10.1-1 schematically illustrates the interfaces between the ECS at the SMC and its external entities.

The following further describes the external entities, including those identified to support interface testing:

- ASF ECS DAAC - This interface provides the capability for the ASF DAAC to receive configuration data, scheduling directives, policy and procedure information, and user registration information from SMC. The ASF DAAC sends its system performance, accounting data, resource utilization data and status reports to SMC.
- EDC ECS DAAC - This interface provides the capability for the EDC DAAC to receive configuration data, scheduling directives, policy and procedure information, and user registration information from SMC. The EDC DAAC sends its system performance, accounting data, resource utilization data and status reports to SMC.

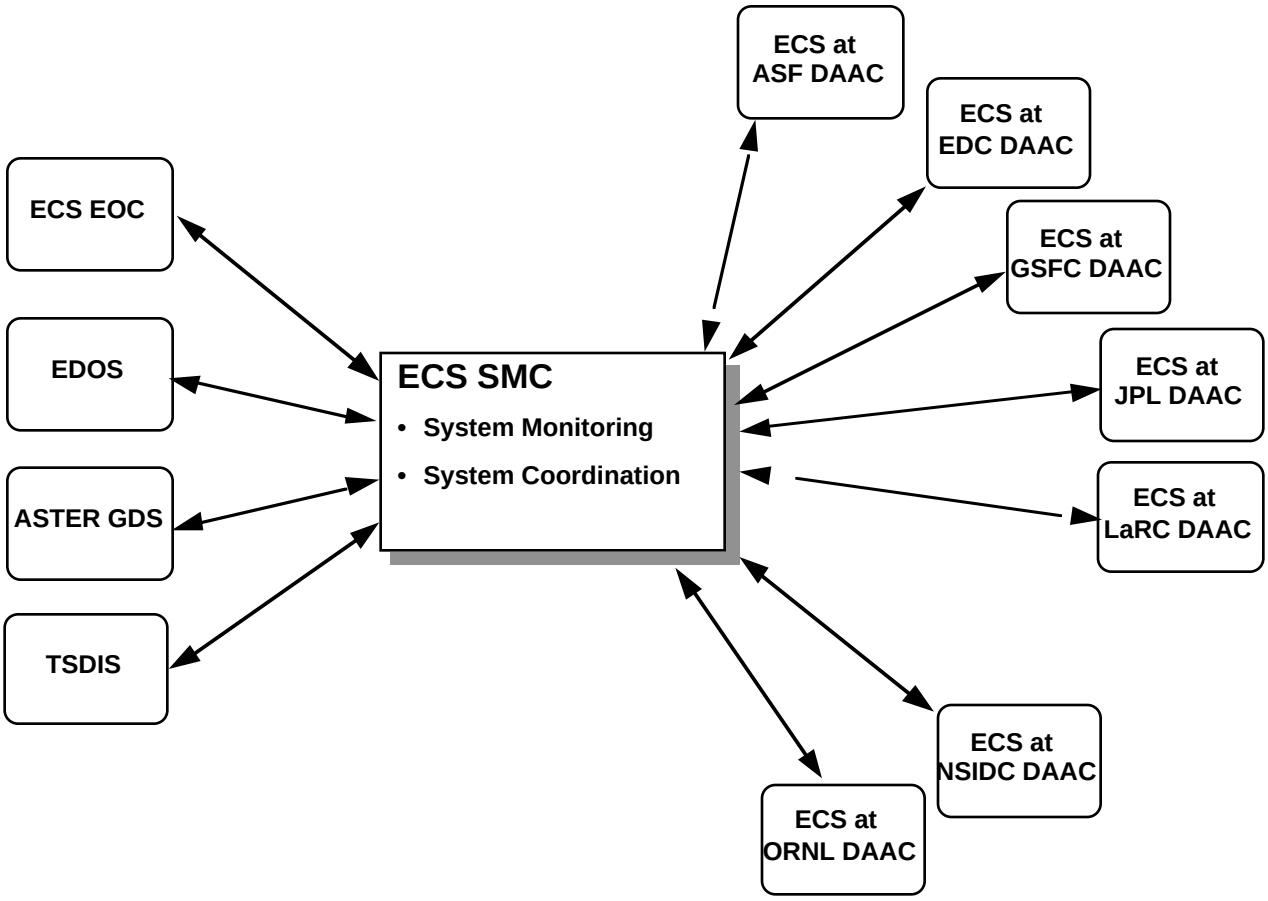

Figure 5.10.1-1. Release B Key Interfaces: ECS SMC

- GSFC ECS DAAC - This interface provides the capability for the GSFC DAAC to receive configuration data, scheduling directives, policy and procedure information and user registration information from SMC. The GSFC DAAC sends its summary fault and performance data, accounting data, resource utilization data, and status reports to SMC.
- JPL ECS DAAC - This interface provides the capability for the JPL DAAC to receive configuration data, scheduling directives, policy and procedure information and user registration information from SMC. The JPL DAAC sends its summary fault and performance data, accounting data, resource utilization data, and status reports to SMC.
- LaRC ECS DAAC - This interface provides the capability for the LaRC DAAC to receive configuration data, scheduling directives, policy and procedure information and user registration information from SMC. The LaRC DAAC sends its summary fault and performance data, accounting data, resource utilization data, and status reports to SMC.

- NSIDC ECS DAAC - This interface provides the capability for the NSIDC DAAC to receive configuration data, scheduling directives, policy and procedure information and user registration information from SMC. The NSIDC DAAC sends its summary fault and performance data, accounting data, resource utilization data, and status reports to SMC.
- ORNL ECS DAAC - This interface provides the capability for the ORNL DAAC to receive configuration data, scheduling directives, policy and procedure information and user registration information from SMC. The ORNL DAAC sends its summary fault and performance data, accounting data, resource utilization data, and status reports to SMC.
- ECS EOC - This interface provides the capability for the SMC to monitor and exchange status, performance summary and management information between the EOC and SMC.
- EDOS - This interface provides the capability for the SMC to receive delivery records from EDOS. This interface also allows EDOS to receive system coordination information from SMC.
- ASTER GDS - This interface provides the capability for the SMC to receive Long Term Instrument Plan (LTIP) and Long Term Science Plan (LTSP) for data acquisitions from ASTER GDS. This interface also allows ASTER GDS to receive system coordination information from SMC.
- TSDIS - The SMC interface with TSDIS is to monitor the status of the TSDIS. This is an operational interface via e-mail.
- EBnet - The EBnet is the primary interface between the SMC, DAACs, EDOS, other ECS assets, and non-ECS elements. The SMC interface with the EBnet is to monitor and exchange status information between the EBnet and ECS.

5.10.2 ECS SMC Mission and Operations Activities

This section is a list of the mission and operation activities specific to the ECS SMC during release B.

- System Management: system performance analysis, trends analysis, mode management
- Resource Scheduling Management: cross-site scheduling, schedule adjudication
- Configuration Management: Software configuration, Baseline Management, Change Request Management, remote software distribution, automated software license administration
- Accounting Management: account payable/receivable, credit tracking, price estimate for data, resource utilization costing, invoicing and billing
- Management Logistics, Inventory Control, Training and Maintenance
- Policies and Procedures: ECS policy dissemination

5.10.3 Day in the Life of ECS at the SMC

Activities described in this section occurred on Wednesday, 01-Sep-99, during Epoch "k." This section provides a retrospective look at the operational activities of the day. That is, it is the "as executed" data for that day. Figure 5.10.3-1 shows a composite look at the day in the life of ECS operations at all of the DAACs. Figure 5.10.3-2 shows the SMC operations staffing.

Figures 5.10.3-3 through 5.10.3-8 show Release B and Release C activities leading up to and during this period that have the potential to affect operations. Activities related to Releases C & D missions have not been defined. Some non-operational activities may have an impact on operations by reassigning resources from operations to test. However, this "Day in the Life" material assumes there were no impacts from these activities to ingest, production, archive and data distribution operations.

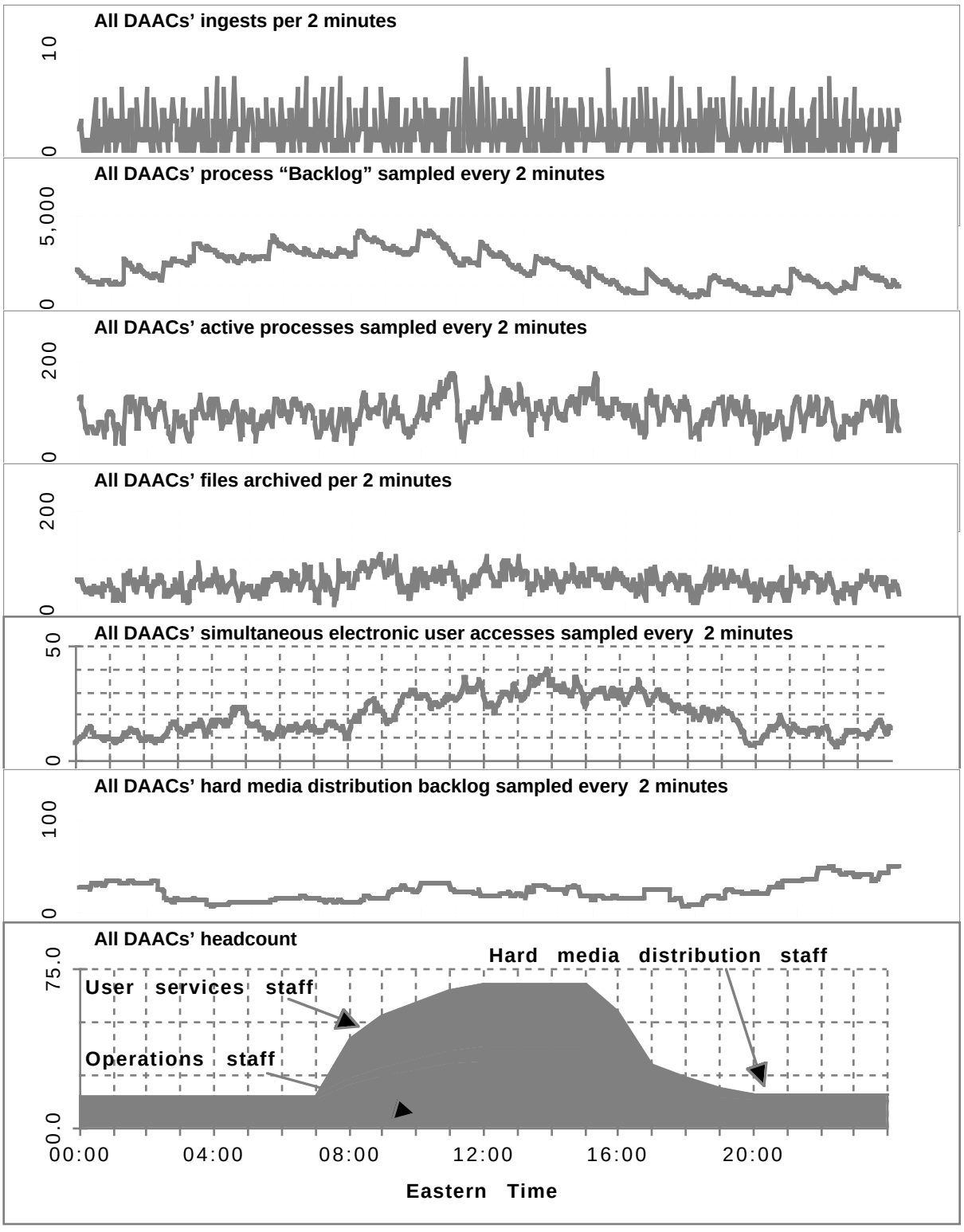

Figure 5.10.3-1. Overview of Day in the Life of ECS

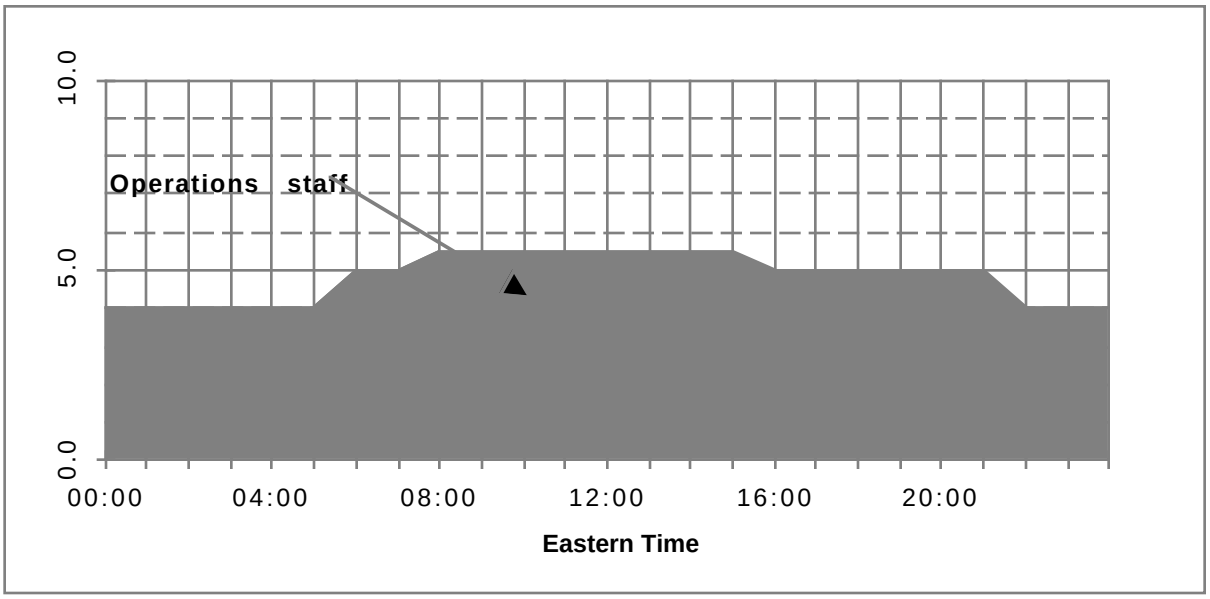

Figure 5.10.3-2. SMC Operations Staffing

Name	1994	1995	1996	1997	1998	1999	2000
B: ECS development milestones			11/1			9/30	
B: HW installations			11/1	6/11			
B: Consent to ship Review			6/1				
B: Site acceptance testing			6/1	9/4			
B: Release Readiness Review			9/1				

Figure 5.10.3-3. SMC Related Release B Development Milestones

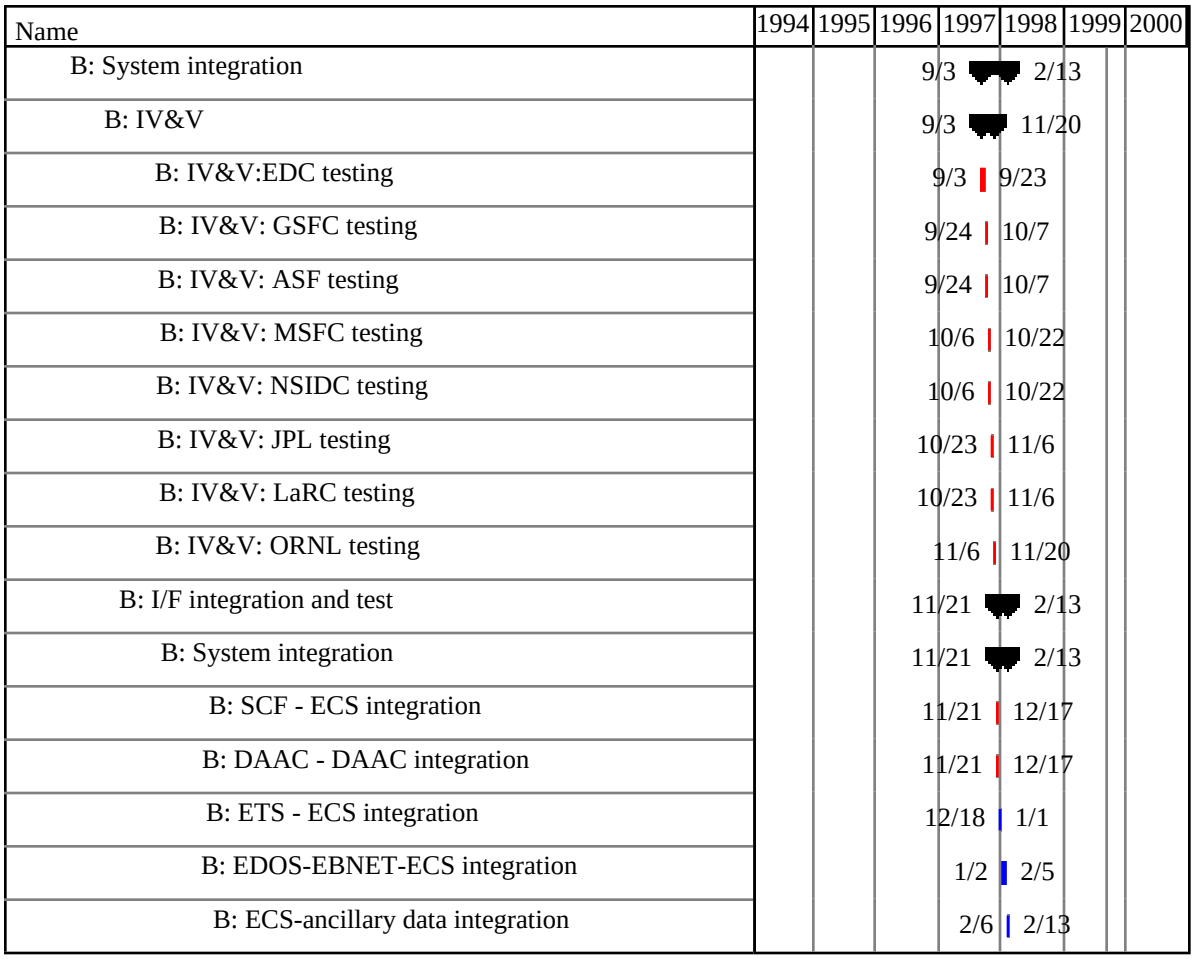

Figure 5.10.3-4. SMC System Integration Activities

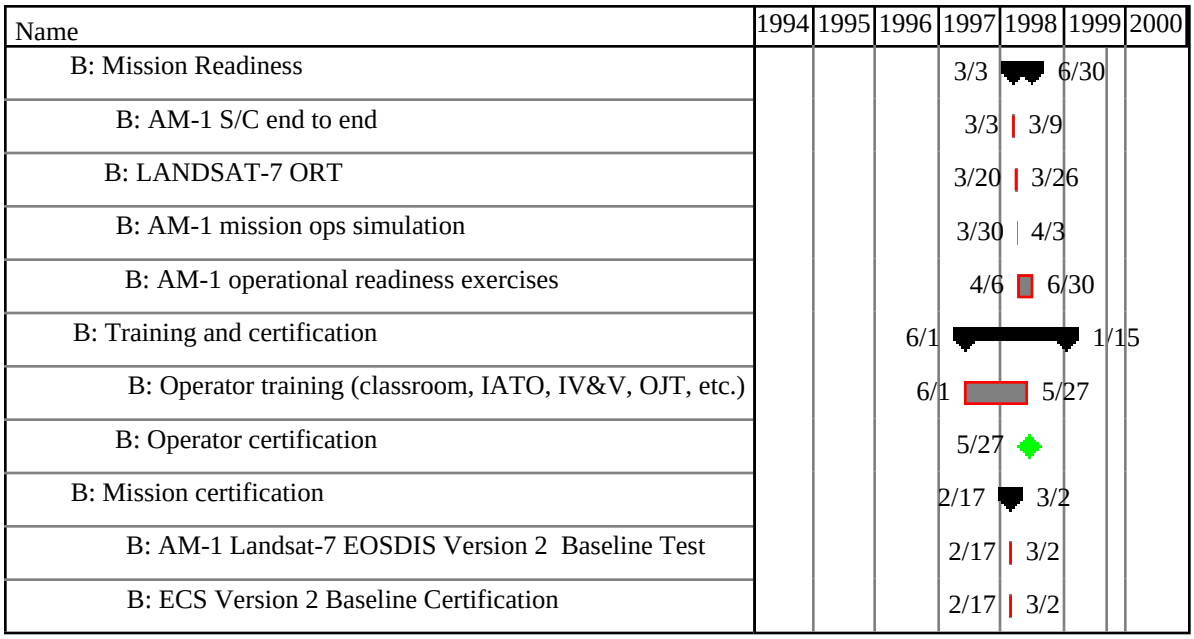

Figure 5.10.3-5. SMC Mission Readiness, and Training and Certification Activities

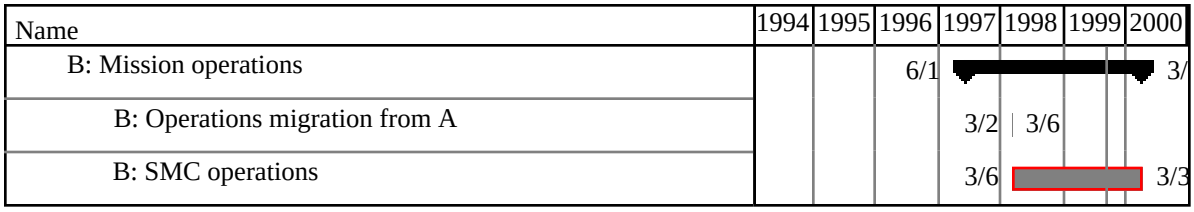

Figure 5.10.3-6. SMC Mission Operations Activities

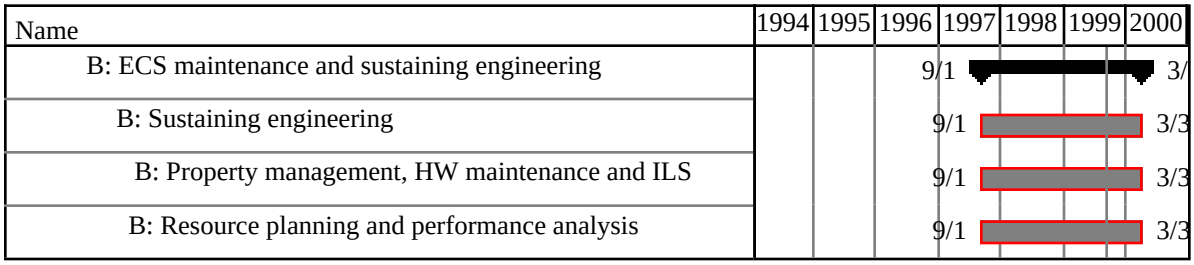

Figure 5.10.3-7. SMC Maintenance and Sustaining Engineering Activities

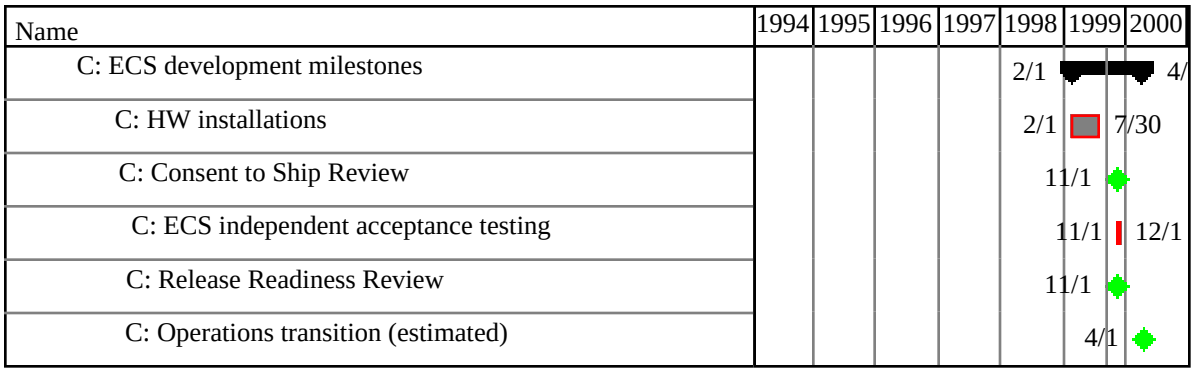

Figure 5.10.3-8. SMC Related Release C Development Milestones

5.10.3.1 SMC Compilation of Production Operations

Data on processing and reprocessing activities are forwarded to the SMC on a regular basis. Figures 5.10.3.1-1 and 5.10.3.1-2 show data compiled from the DAACs on science data processing and reprocessing.

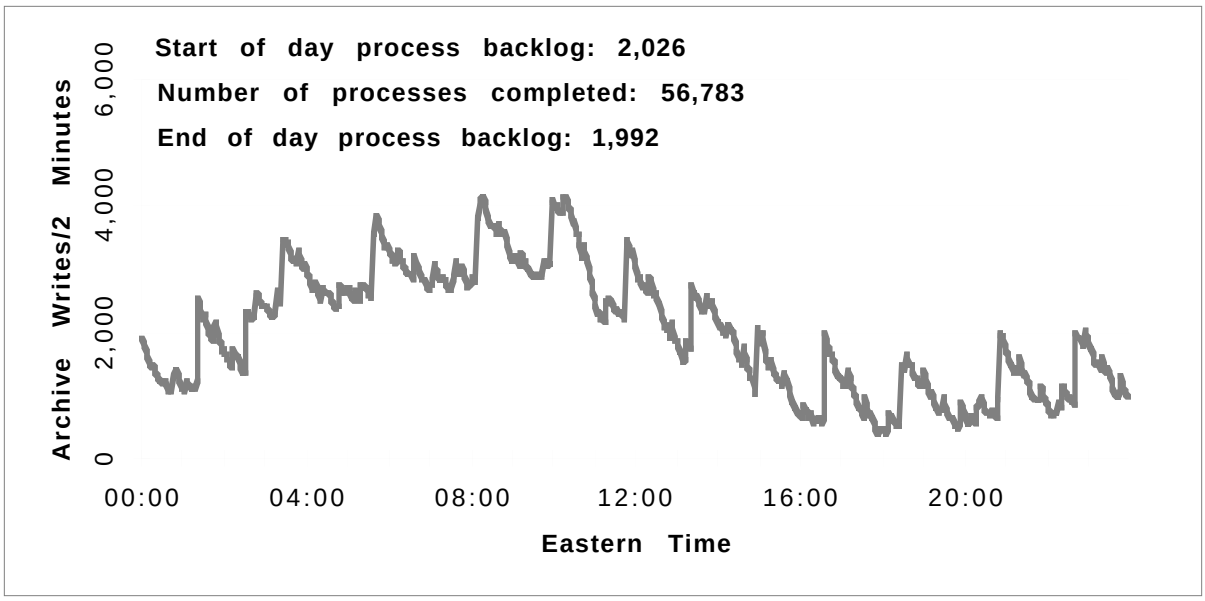

Figure 5.10.3.1-1. SMC Composite Processing Backlog

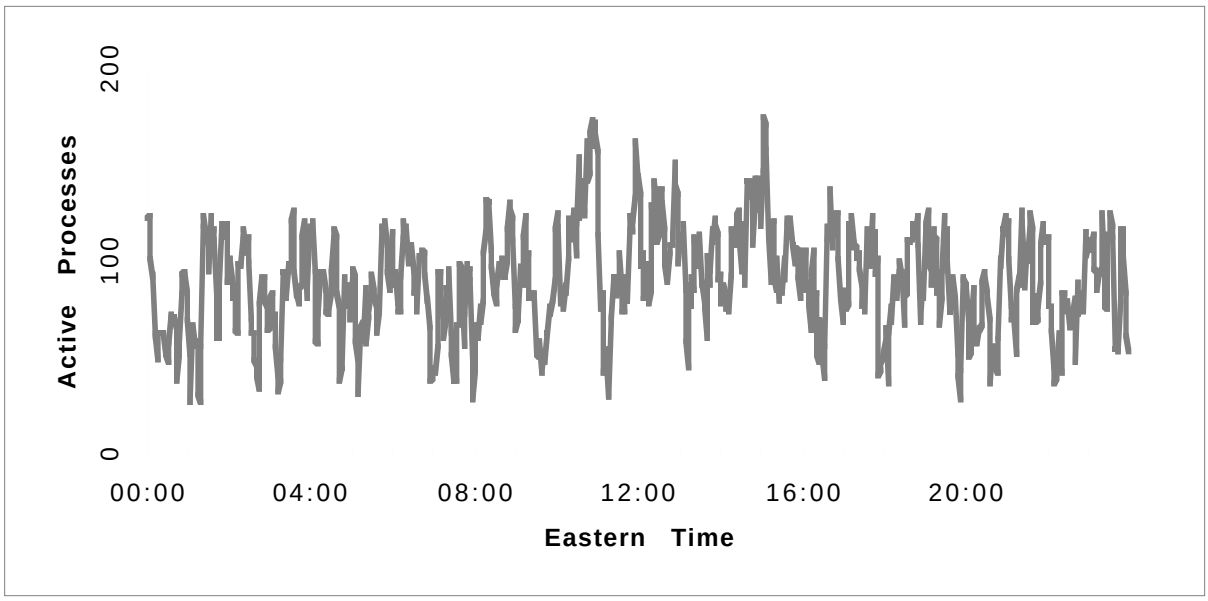

Figure 5.10.3.1-2. SMC Composite Processing Active Processes

5.10.3.2 SMC Compilation of Archive Operations

Data on archive operations are forwarded from each DAAC to the SMC approximately once per shift. Figure 5.10.3.2-1 shows the composite archive write operations at all of the DAACs.

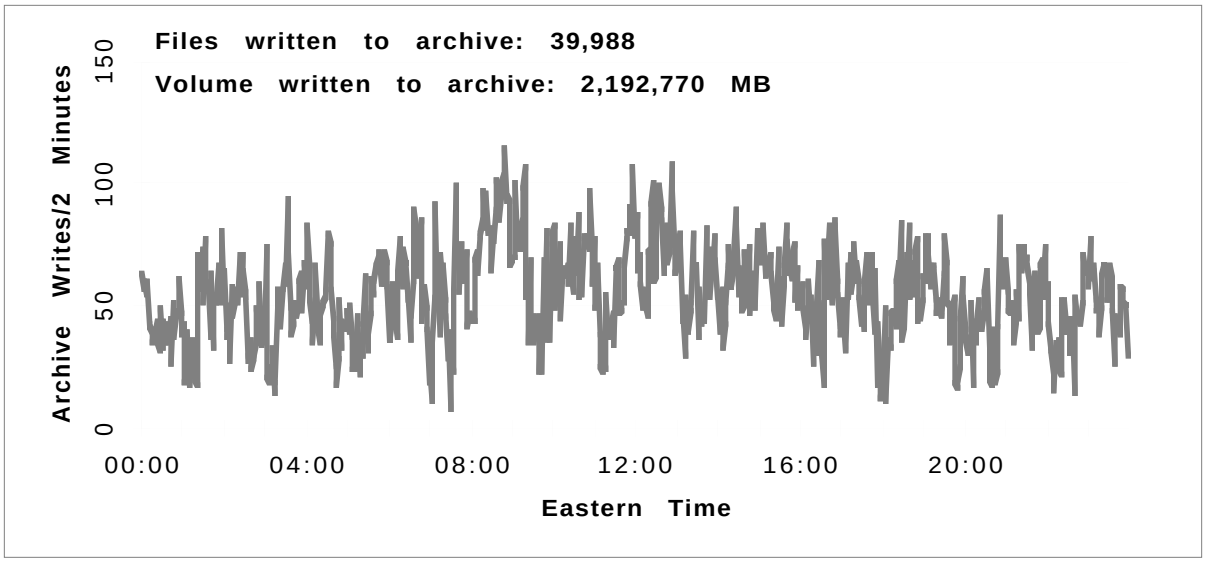

Figure 5.10.3.2-1. SMC Composite Archive Write Operations

5.10.3.3 SMC Compilation of Product Distribution Operations

5.10.3.3.1 SMC Compilation of Hard Media Distribution Operations

Data on hard media distribution are forwarded from each DAAC to the SMC approximately once per shift. Figure 5.10.3.3-1 shows the day's hard media distribution backlog in terms of orders and media for all data sets distributed by ECS. Figure 5.10.3.3-2 shows the distribution of orders and number of media mapped against order size. Table 5.10.3.3-1 summarizes the day's media creation and distribution activities.

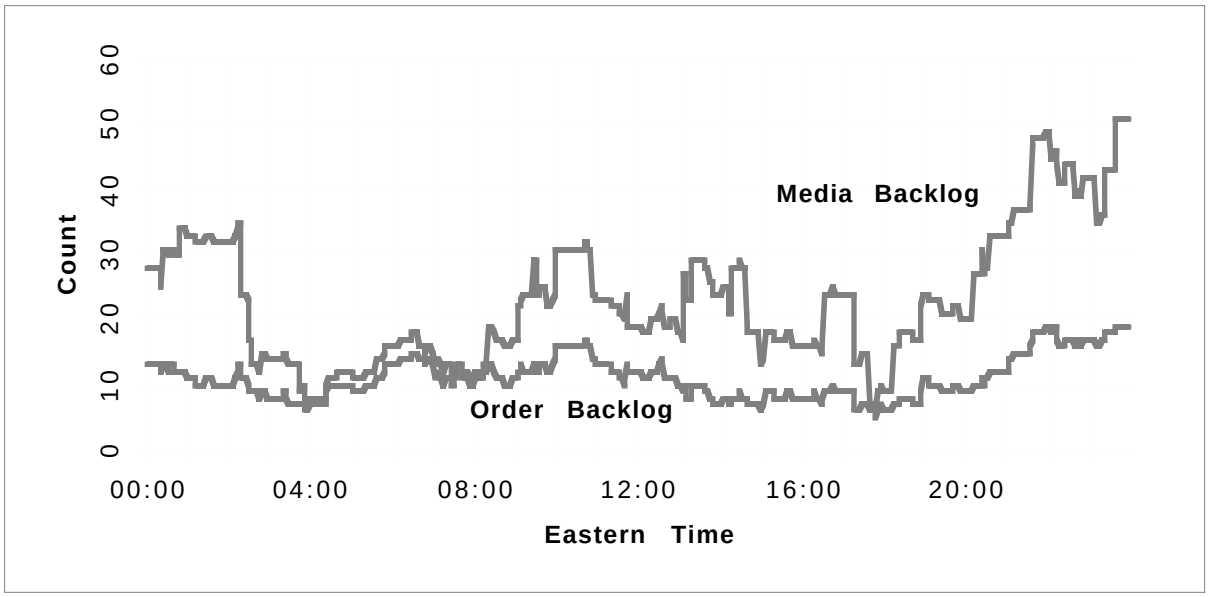

Figure 5.10.3.3-1. SMC Composite Hard Media Distribution Backlog

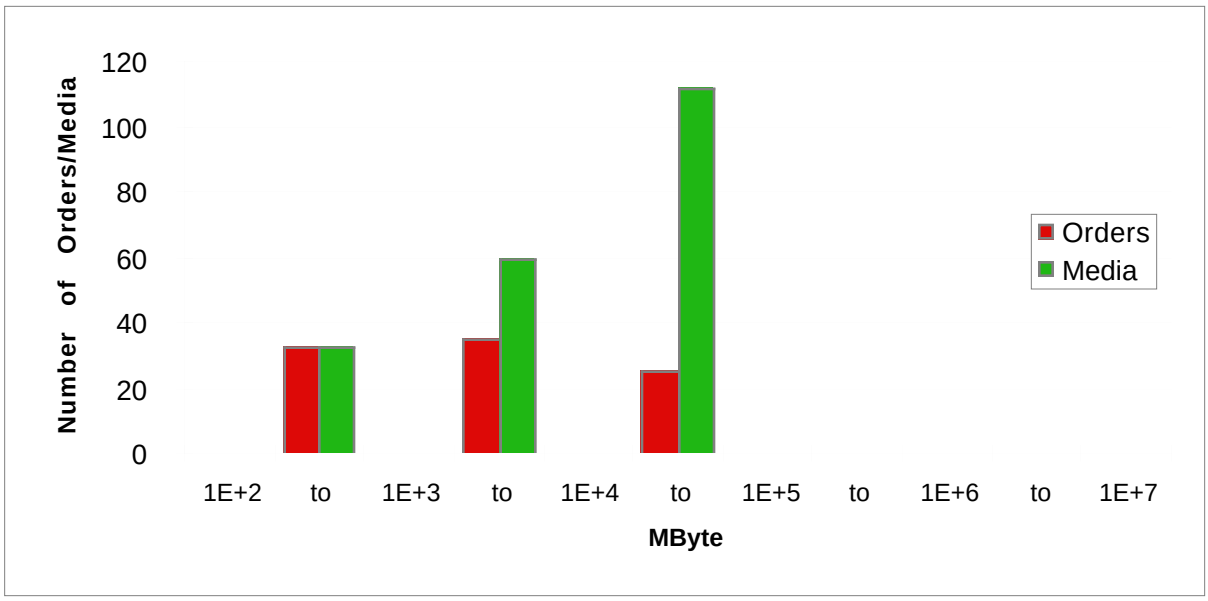

Figure 5.10.3.3-2. SMC Composite Orders and Media by Order Volume

Table 5.10.3.2-1. SMC Media Distribution Summary

Topic	Number of orders	Volume (MB)	Number of media
Start of day in work	14	260,063	37
Start of day backlog	13	192,773	28
Orders received	95	1,216,725	212
Data distributed	85	749,791	149
End of day in work	17	565,791	76
End of day backlog	19	353,601	51

5.10.3.3.2 SMC Compilation of Electronic Distribution Operations

Data on user accesses are reported to the SMC approximately once per shift. Figure 5.10.3.3-3 summarizes user accesses system wide.

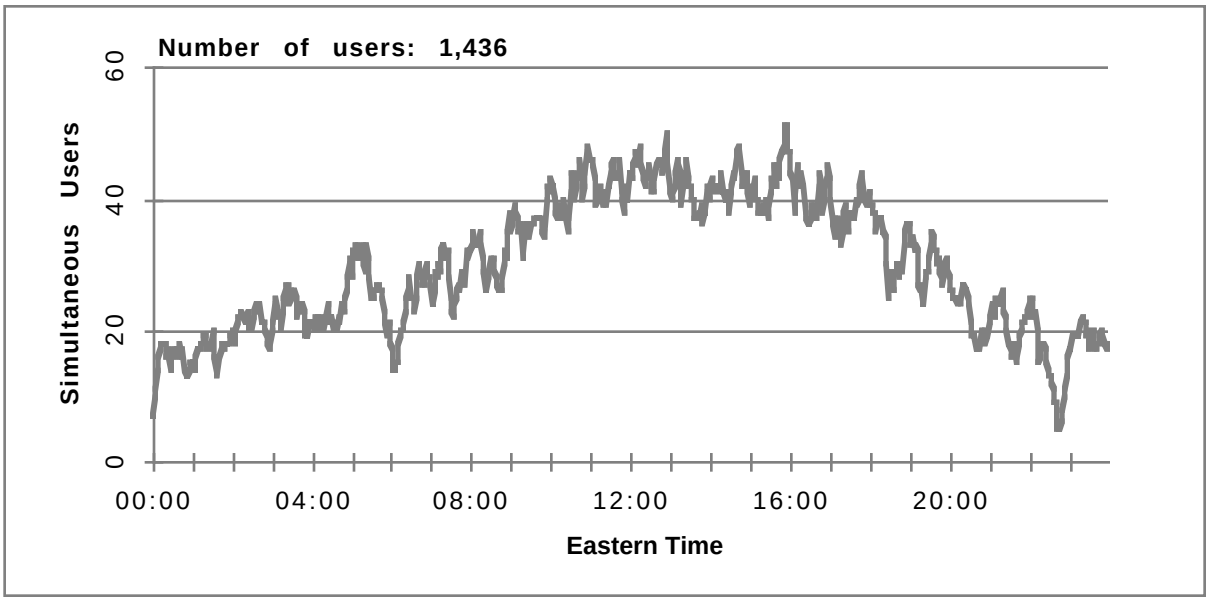

Figure 5.10.3.3-3. SMC Composite User Sessions

5.10.3.4 SMC Message Traffic

Each DAAC, the EOC and the SMC exchange (i.e., 1 read and 1 write) routine information including system errors and problems, science data production, archive and distribution. Figure 5.10.3.4-1 shows the time distribution of the exchange of this data and assumes a data exchange between the SMC and each of the other organizations once every 5 minutes.

In addition to this product related data, ad hoc and routine reports on actions, resource utilization, etc., were received regularly at the SMC. Each DAAC and the EOC exchanges this information with the SMC an average of once an hour. Figure 5.10.3.4-2 shows a time distribution of the exchange of this data.

The SMC also exchanged electronic information with external organizations such as communications systems (e.g., EBnet), EDOS, TSDIS, and SDPF. An exchange rate of 1 read and 1 write approximately every 5 minutes for all of these systems is used in the analysis. Figure 5.10.3.4-3 shows a time distribution of the exchange of this data.

Figure 5.10.3.4-4 combines the message traffic information from Figures 5.10.3.4-1 through 5.10.3.4-2.

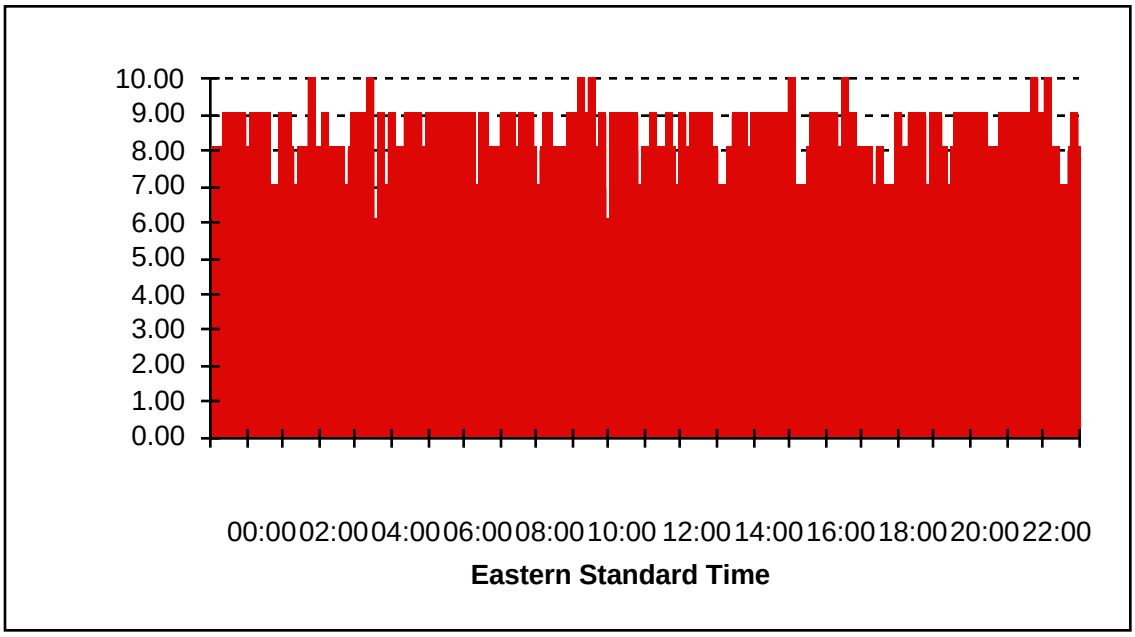

Figure 5.10.3.4-1. SMC Exchange of Routine Reports with the DAACs and EOC

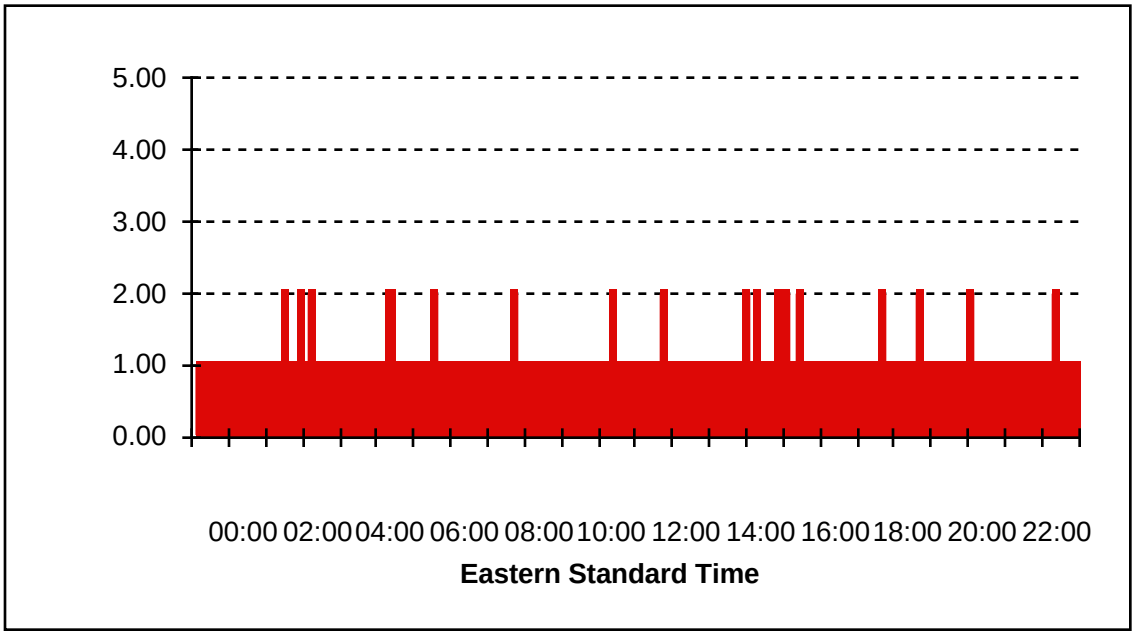

Figure 5.10.3.4-2. SMC Exchange of Ad Hoc Data and Reports with the DAACs and EOC

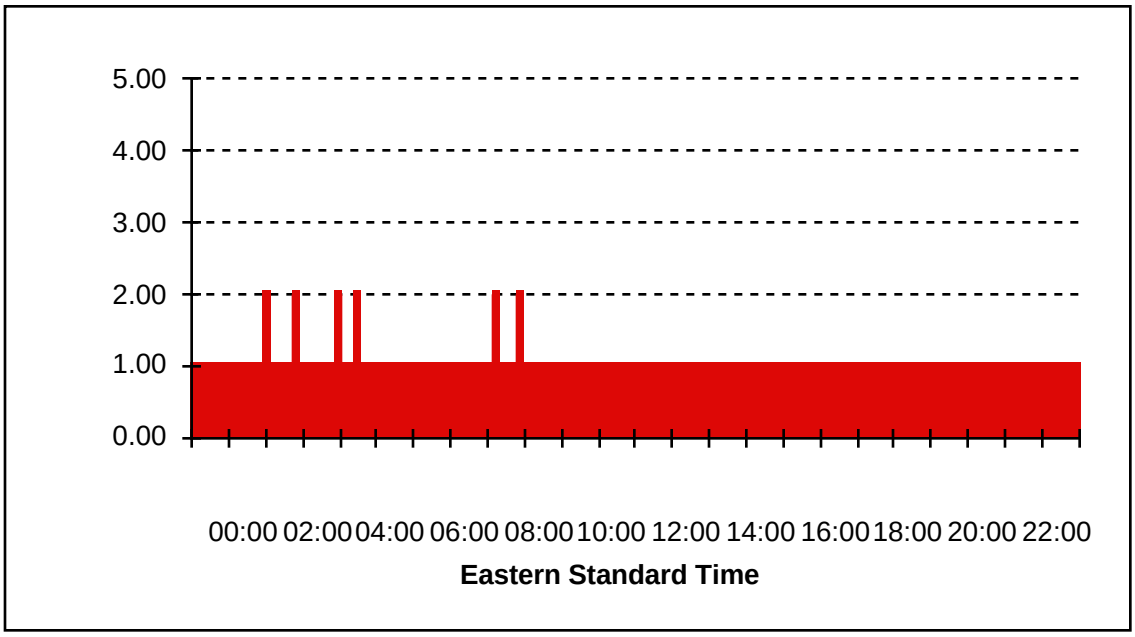

Figure 5.10.3.4-3. SMC Exchange of Status Reports with External Systems/Organizations

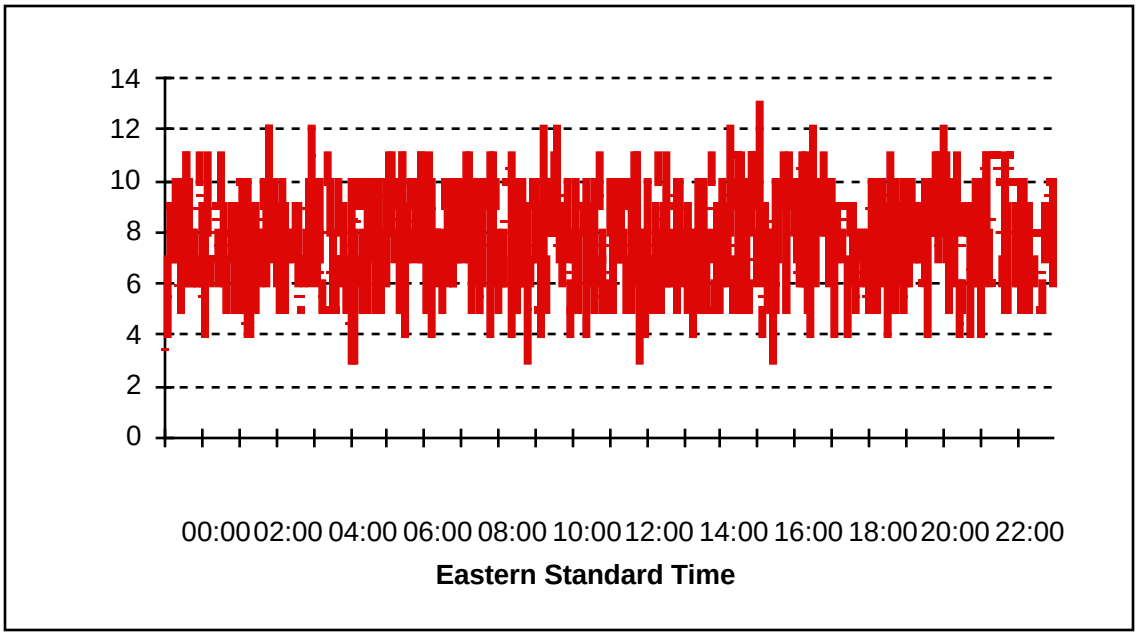

Figure 5.10.3.4-4. SMC Composite Message Exchanges

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